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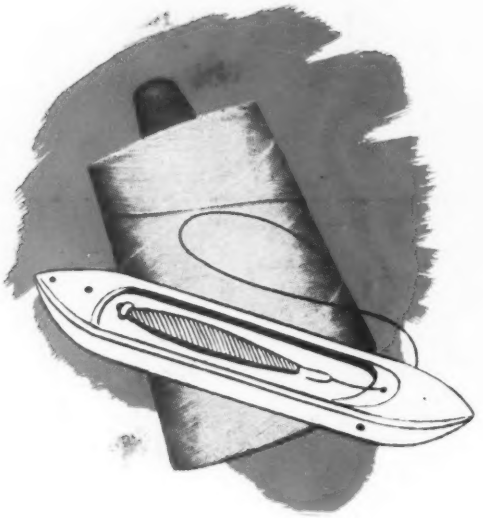
TEXTILE WORLD

A McGraw-Hill Publication ---------- DECEMBER • 1946

Honoring the Silver Jubilee of
AMERICAN ASSOCIATION OF TEXTILE CHEMISTS & COLORISTS

COTTON • RAYON • WOOL • SILK • NYLON



Plans and designs for all types of projects related to the textile industry. Appraisals, modernization studies, machinery layouts, air-conditioning, power and water filtration plants, and other phases of textile engineering.

ROBERT AND COMPANY
INCORPORATED
Architects and Engineers
ATLANTA

TWENTY-EIGHT YEARS' NATIONWIDE EXPERIENCE
IN INDUSTRIAL AND TEXTILE DEVELOPMENT

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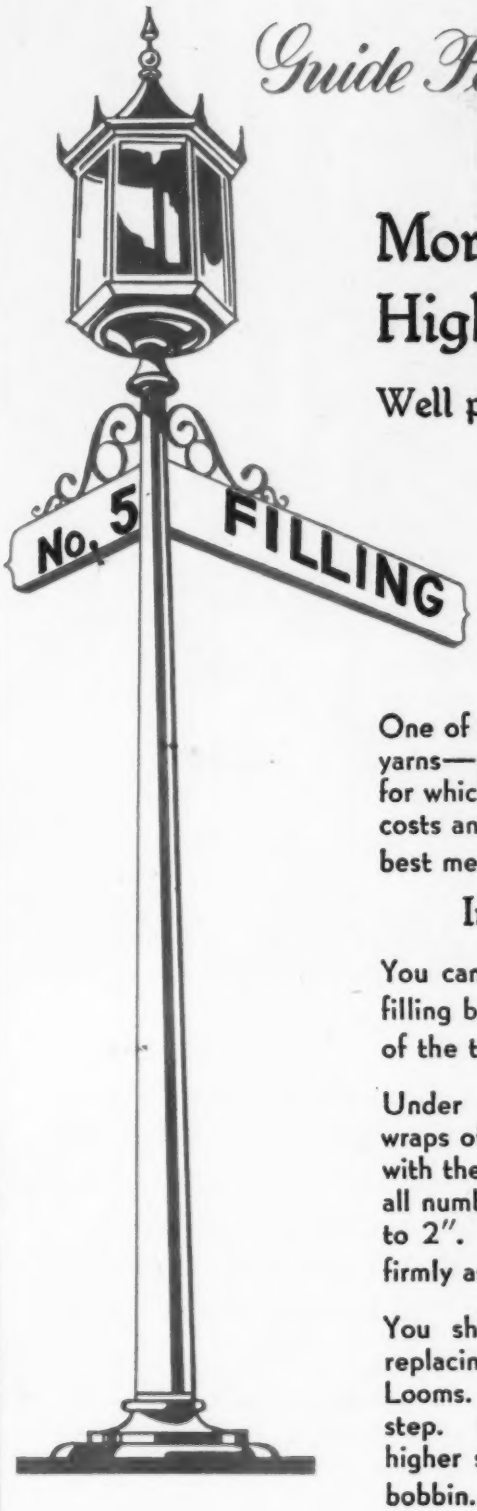
Guide Posts to Increased Production



More Production with High Grade Yarns

Well prepared filling gives you
More and Better Cloth
Lower Weaving Costs

Production standards in your weave room cannot be maintained if the filling has too many slubs, knots, or imperfections caused by poor piecing. Your filling must be conditioned to weave off cleanly.

One of the vital factors in weave room efficiency is well prepared yarns—yarns that allow you to run your looms at the High Speeds for which they are designed. Weak filling increases your weaving costs and makes more work for the weaver. Assign one of your best men to

Inspect the Filling at Frequent Intervals.

You can often reduce or eliminate slough-offs—fertile source of filling breaks—by a change in the build of the filling or the length of the traverse.

Under most conditions you will obtain the best results if the wraps of filling on the bobbin have a ratio of approximately 3 to 1 with the ring rail moving up slowly and down fast. On practically all numbers of filling the length of traverse should be from 1-3/4" to 2". The filling should be spun or wound on the bobbin as firmly as possible.

You should give serious consideration to bobbin design when replacing older units with our up-to-date High Speed X Series Looms. You need new style bobbins with the non-slough feeler step. Old bobbins may prove to be entirely inadequate for higher speeds. We can help you in the selection of the correct bobbin.

Do not limit your success by holding to previously accepted standards.

Fifth in a Series

Of What Well-Managed Mills Are Doing to Get the Best Results in Weaving

DRAPER CORPORATION
HOPEDALE MASSACHUSETTS

STOP OIL STAIN

To prevent costly oil stain—to get consistently high output of *clean* yarn and yardage—lubricate loom cranks, top rolls and other fast-moving equipment with *Texaco Stazon.*

Texaco Stazon stays on the bearing surfaces —won't splatter, creep or drip even under heavy load shocks. It is stable and long-lasting, doesn't form gummy deposits, assures longer, more efficient life for your equipment.

Enjoy these benefits in *your* mill by using Texaco Products and Lubrication Engineering Service. Call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write:

The Texas Company, 135 E. 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

Tune in...TEXACO STAR THEATRE presents the NEW EDDIE BRACKEN SHOW every Sunday night. Metropolitan Opera broadcasts every Saturday afternoon.

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TEXTILE WORLD

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Cover photo by Cone

THE *Long-Range* VIEW

Time for Better Relations

Operation Dixie and the threat of strikes throughout many branches of American industry emphasize a phase of plant operations which must be recognized and about which something must be done.

As TEXTILE WORLD pointed out in its February, 1944, issue, the foremost problem in the textile industry has been maintaining mutually satisfactory relations with labor. But how many mills have an adequate program for so doing? How many are willing to take the necessary time for better relations? Today, maintaining good relations is as much of a mill problem as getting 95% loom efficiency. Labor relations and public relations are not things to be left wholly to politicians, newspapers, teachers, or ministers. Nor can good relations be insured merely by designating a full- or part-time officer or employee to do the job.

The generation of workers now entering textile mills (in fact, entering all industry) has been exposed during its formative years to all sorts of erroneous thinking in regard to economics in general and industry in particular. This generation is now beyond the direct influence of schools. Needed re-educating can be done by industry, by textile mills. The undertaking involves educating the mill's own workers and explaining to the community in which it operates the true relationship of the mill to the community.

When even a prominent government official supports the idea that wages can be raised without increasing prices, that we can lift ourselves by our boot straps instead of improving our lot by greater productivity, it is not surprising that textile workers feel the only reason they are not getting more and more is because of the greediness of mill owners.

Although the idea of higher wages without higher prices has been proved fallacious, there is still some misunderstanding of the matter of worker efficiency. We refer to the claims that ever-increasing productivity per worker is due to the effort of the worker; that whenever a worker's output increases he is entitled to a proportionate wage increase. Actually, a production increase may be due entirely to the installation of an efficient materials-handling system or to some other change in work that represents a considerable cash outlay by the mill owners. How can a mill owner be induced to make the change if (as in England) he cannot get a return sufficient to encourage him to make it?

Ignorance of how mills operate, of their true position in the community, of the interdependence of all aspects of manufacturing is basically responsible for most misunderstanding, for most antagonism, for most clashes between management and workers.

To combat such ignorance, more is necessary than a slogan, "Our mill is a good mill in which to work"; more than an annual picnic or some other function which top officials condescend to attend. What is necessary, among other things, is some basic information distributed without an obvious mill tie-in and with an openness which too often is lacking in the operation of textile mills. Some of the basic information can be, and is being, distributed by the more progressive textile-mill associations, such as the American Cotton Manufacturers Association and the National Association of Cotton Manufacturers; but no association can do the labor-relations and public-relations job necessary in each mill's own community.

Inherently, the necessary program must have the support of top management. The program will cost money, but not nearly so much as will the failure of mills to take time for better relations, the failure to recognize our function of explaining and promoting our free-enterprise system.

C. H. Bendigo

ALL MACHINES AT TOP SPEED!...

EFFICIENT DRIVES WILL DO THIS

The secret of drive efficiency is correct tension, plus strong, tough, resilient, durable Tannate leather belting.

A Rhoads Tannate-Rockwood Short Center Drive automatically adjusts belt tension to varying loads. The weight of the motor on the pivoted Rockwood base takes care of load fluctuations.

The physical properties of Tannate impart unusual endurance, long life with minimum maintenance.

This is *the* drive for you to use. Consult Rhoads Engineering service—get more details.

Established 1702

J. E. RHOADS & SONS

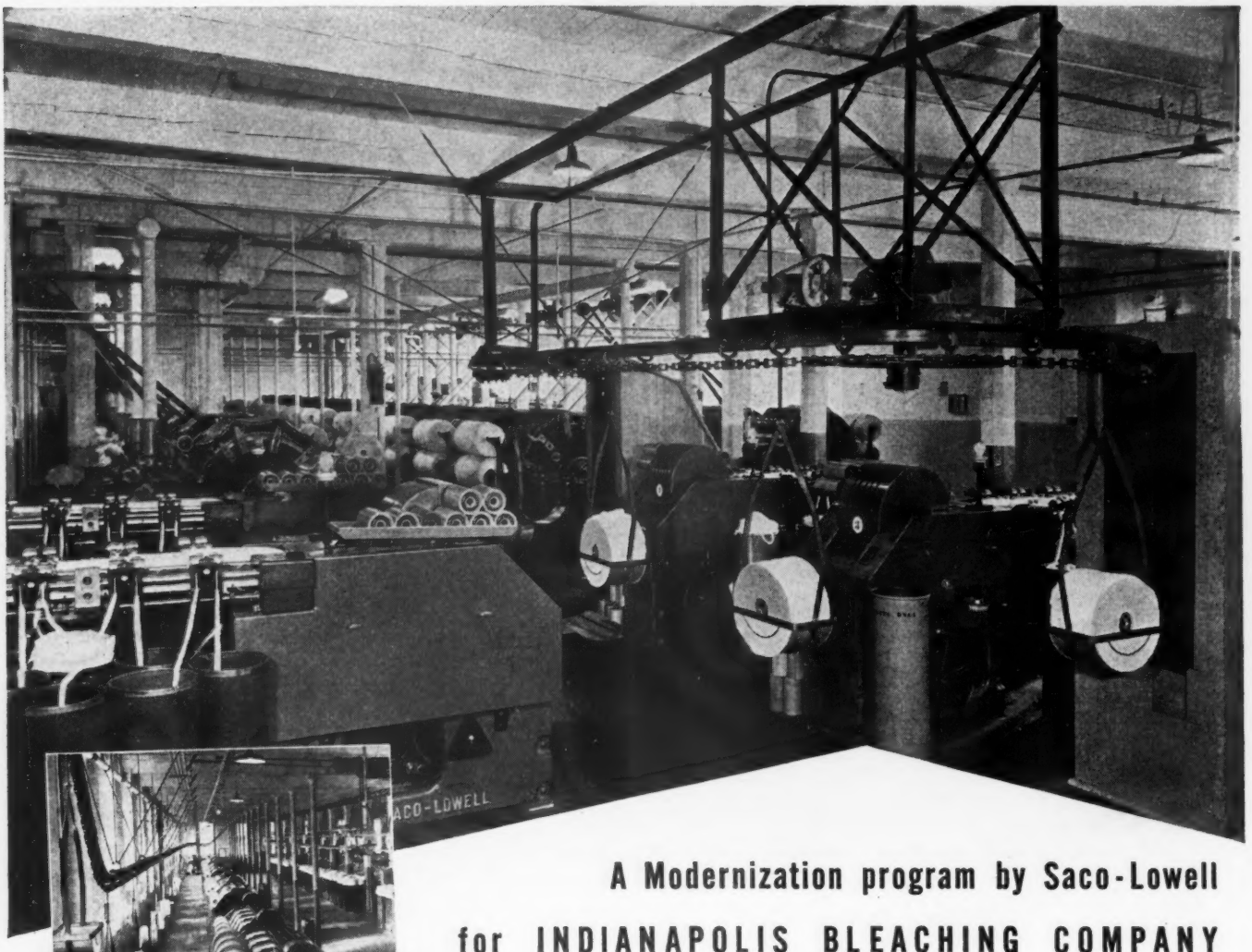
35 N. SIXTH ST., PHILA. 6, PA.

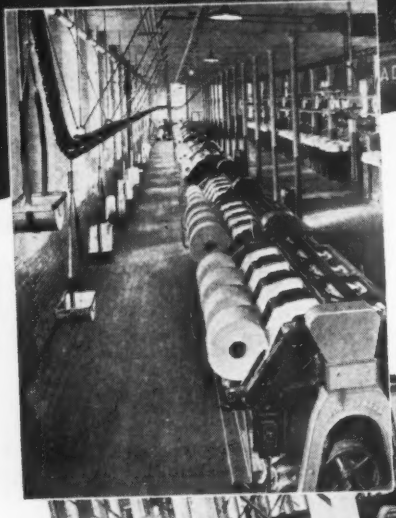
NEW YORK CHICAGO ATLANTA

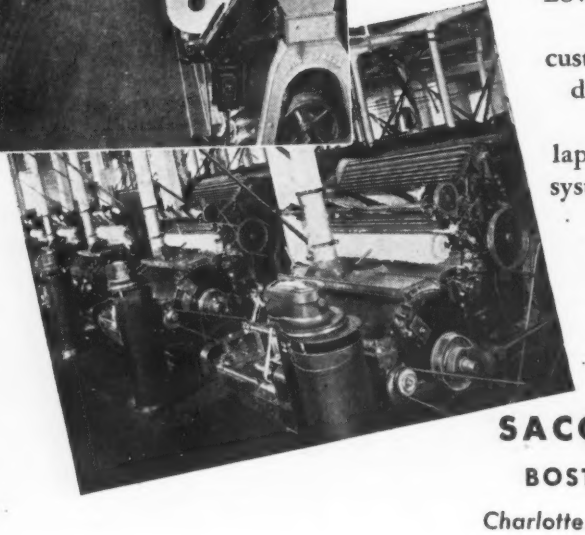
RHOADS *Tannate* WATERSHED LEATHER BELTING

Tannate-Rockwood SHORT CENTER DRIVE

where Quality is always "in the Bag"







A Modernization program by Saco-Lowell

for INDIANAPOLIS BLEACHING COMPANY

(DIVISION OF BEMIS BRO. BAG COMPANY)

The Indianapolis Bleaching Company wanted to use the Saco-Lowell Controlled Draft Drawing System, but, because of insufficient space, found it impossible to follow the customary type of installation, where the lap winders and drawing frames would be adjacent to each other.

The engineers overcame this obstacle by placing the lap winders on the floor with the cards, using a conveyor system to bring the laps to another floor where the drawing frames were installed adjacent to the roving frames.

To mills who find their plans for new equipment hampered by lack of space, our engineers may be able to offer a solution. They are ready to consult with you at your convenience.

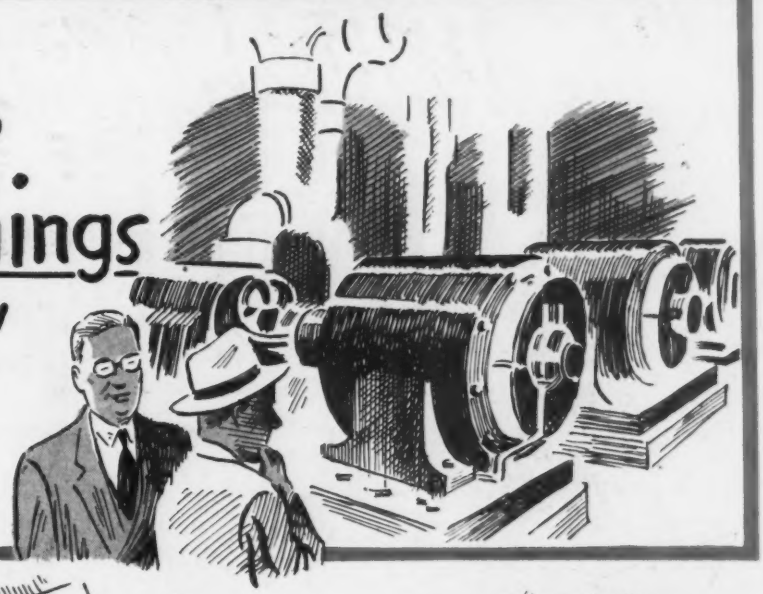
SACO-LOWELL SHOPS

BOSTON, MASSACHUSETTS

Charlotte · Greenville Atlanta

"For This Job, Give Me Two Things in a Motor"

. . . said the Power Plant Engineer



"To Drive Boiler Feed Pumps, motors must first be *simple.* For example, take these three Allis-Chalmers 800 hp, 3600 rpm motors. They're 2-pole, squirrel-cage, single winding machines . . . with practically fool-proof rotors and sleeve bearings. But second, and even *more* important . . .

They've Got to be Dependable! Here's what I mean. These same motors have given us 17 years of uninterrupted service. We've had to order replacement parts for them only twice . . . at a total cost of less than $12 a year. We call that *good performance* . . . the kind we've come to expect of *all* your motors!"

Frankly, Mr. Reader, we *are* mighty proud of our 2-pole motors. We've been developing them for high-speed requirements like this from the very earliest. Licked a lot of problems too. Like cutting down noise through better design . . . reducing windage noise with proper baffling, and curbing magnetic noise. . .

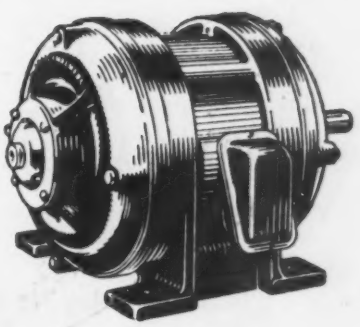
We're Getting Better Efficiencies and power factor . . . and lower starting kva, through improved squirrel-cage design. We've designed bearing brackets generously for greater structural rigidity. In fact, all the way around you can expect to find long life and low maintenance built-into our motors!

Yes, "A-C" Means Long Life in Motors!

REGARDLESS of size or type you'll be money ahead with Allis-Chalmers motors. For at A-C you can expect and *get* the same careful engineering, generous design and long-life operation that thousands of motor buyers have come to rely upon through the years.

And remember . . . while many jobs call for special or modified motors, there are *many more* that can be solved with *standard* motors . . . at less cost . . . and often with saving in time! ALLIS-CHALMERS, MILWAUKEE.

A 2082



ALLIS CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

Wash and Light Fast

Developed BLACKS.

DON'T

WALK A pH. CHALK LINE

...*Coupling*

SIMPLE TO USE

HYDROXANIL only requires dissolving in hot water and adding to the developing bath.

It can be added at any pH range from 5 to 8, and will operate at any temperature from 100° to 140° F.

S... NOW AVAILABLE!

with

HYDROXANIL

Maracel Developed Black A and N Diazotized and developed with HYDROXANIL will produce true blacks without shading with orange or yellow which eliminates yellow stains on white trimmings.

HYDROXANIL assures you uniform results from 'batch to batch' without walking a pH chalk line. It is specifically designed for simple, time-saving operation in the dyeing of Acetates and Nylon.

g Complete in 30 minutes!

No excess rinsing or soaping required! TWO batches dyed in the time usually required for one!

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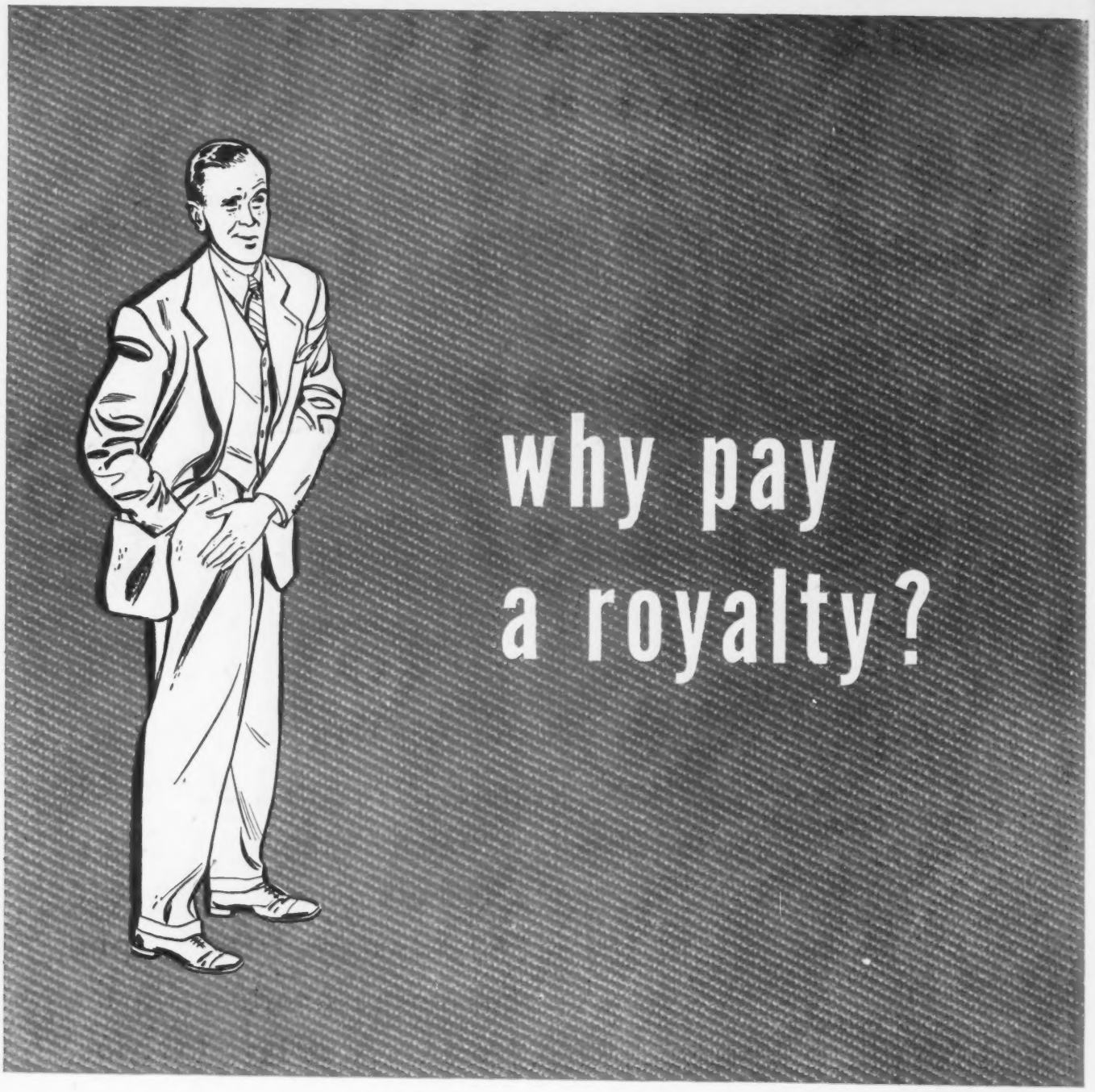

The payment of royalties to holders of patents in the textile industry, may . . . or may not be . . . a mutually satisfactory arrangement. A firm that pays the royalty is usually happy only when the patent owner uses the income in ways that are helpful not only to himself but to his licensee:

1. Policing the manufacture of fabrics so that they conform to controlled standards, thereby bringing respect from the consumer and carrying premiums to the licensee.
2. Advertising and promoting the merchandise to increase consumer demand for the licensee's product.

Monsanto Chemical Company, in presenting Resloom to the industry and the public, has had to face this royalty question. It has now made this decision: *Monsanto will neither license nor collect a royalty on Resloom.* It will endeavor, nevertheless, to function exactly as if the royalty were being collected, i.e., exercise controls to insure lasting character in Resloom treated merchandise, and, create demand for Resloom treated products via Monsanto advertising.

Monsanto believes that it is to the company's interest as well as to its customers' to follow this policy, reserving the right to change its decision, if experience reveals that our customers prefer a licensing and royalty arrangement. For full information on Resloom and other Monsanto textile developments address: MONSANTO CHEMICAL COMPANY, 140 Federal St., Boston 10, Mass.

Resloom: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS AND PLASTICS
the Textile
SERVING INDUSTRY . . . WHICH SERVES MANKIND

NEW DEPARTURE division of GENERAL MOTORS

BALL BEARINGS

EXECUTIVE OFFICES, BRISTOL, CONNECTICUT

BOSTON	CHICAGO	DETROIT	LOS ANGELES	NEW YORK	PHILADELPHIA	SAN FRANCISCO	AND IN OTHER PRINCIPAL CITIES
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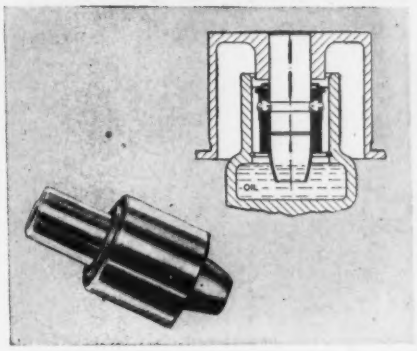
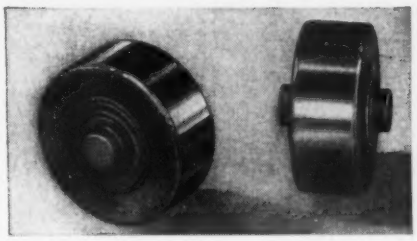
TENSION PULLEY BEARINGS

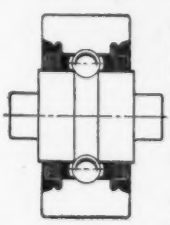


Designed for the vertical mounting of idler or tension pulleys for speeds above 1000 r.p.m. Instead of the conventional bearing inner race, a solid steel shaft extends upward enough to provide a seat for the pulley hub. To the lower end of this shaft is fitted a centrifugal pump which lifts a continuous film of oil from a reservoir and delivers it in the form of a fine spray or mist directly to the balls and raceways. The lubricant circulates but does not escape nor become contaminated with foreign matter.

For further details, ask for Bulletin A-287.

TREADLE ROLL BEARINGS





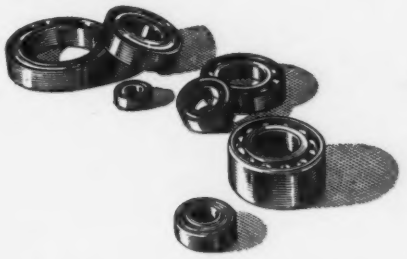
Developed by New Departure especially for cam rollers in textile looms, in cooperation with engineers of the Draper Corporation, Hopedale, Mass.

Made with solid high carbon chrome steel races, heavily proportioned to absorb shock, self-sealed against dirt or lint and lubricated for long life, these "new departures" by New Departure practically eliminate shutdowns for roll replacements.

Field results show that cam life is considerably increased.

For further details, ask for Bulletin A-231.

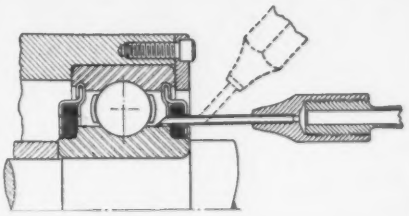
NEW DEPARTURE BALL BEARINGS



Produced by the world's largest manufacturer of ball bearings for original equipment and replacement service on all types of machines. A wide variety of types and sizes including double row, single row, angular contact and sealed. Catalogs and technical literature on request.

Bearing application is a highly specialized art. New Departure engineers will gladly co-operate with your engineers on new designs while yet in the formative stage.

INJECTOR SEAL BEARINGS

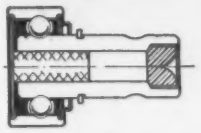


This bearing features a new seal developed for use with the popular ND Seal bearings in the standard and light series sizes. Small holes in the outer metal of the seal permit revitalizing the old bearing lubricant at intervals commensurate with operating conditions, by means of injection needles.

Lubrication method does not require removal of the bearing from the housing. Neither does it involve the use of nipples, grease passages, plugs or removable seals.

Full details describing this "new departure" given in pamphlet A-173.

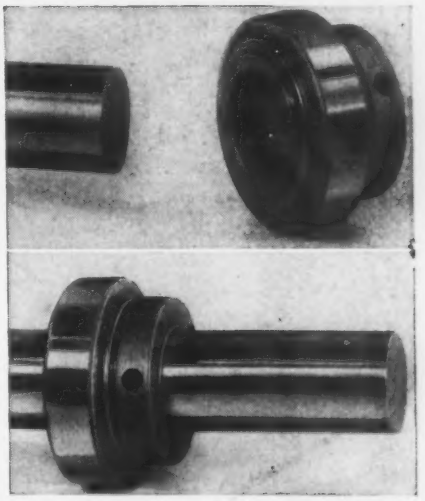
TAPE TENSION PULLEY BEARING



Designed for horizontal mounting of textile tape tension pulleys. Recommended for practically any installation where a pulley or a roll must give uninterrupted service with minimum attention. A few drops of oil once or twice a year fed into hollow shaft, leads through filter to sealed area around ball assembly, and revitalizes original grease.

For details, ask for Bulletin A-306.

ADAPTER BEARINGS



The New Departure Adapter bearing, Type-A, is intended primarily for use with standard cold drawn steel shafting to inch dimensions, where bearing locating shoulders and threads for locknuts are undesirable. Where a slight amount of eccentricity is permissible, they eliminate the need for grinding bearing seats to close tolerances for press fits.

For further details, ask for Bulletin A-288.

3458

(FROM THE FILES OF MEINHARD, GREEFF & CO., INC.)

During the war, a well-known selling agency sacrificed the civilian markets for patriotic reasons and sold millions of dollars of woolen piece goods and blankets to the Army and the Navy.

When the war was over, this enterprising outfit had the idea that it could convert the olive-drab and navy-blue surplus into colorful, useful, and salable fabrics for the hungry civilian market. However, the Government demanded cash for the delivery of these materials and so these men who were well known to Meinhard, Greeff, came and presented the problem.

Sensing the usefulness and timeliness of this operation, and with great confidence in the ability of this concern, Meinhard put up the cash as the Government required. In fact by April, 1946, a million and a quarter dollars of Meinhard's money was tied up in these materials as they were being reprocessed. By October, woolen materials worth $3,000,000 had been recolored, restyled, and sold to the civilian market, and Meinhard was paid back.

This is another example of Meinhard's adaptation to times and conditions, and their response to the enterprise of their clients—based on common sense, not iron clad dictum.

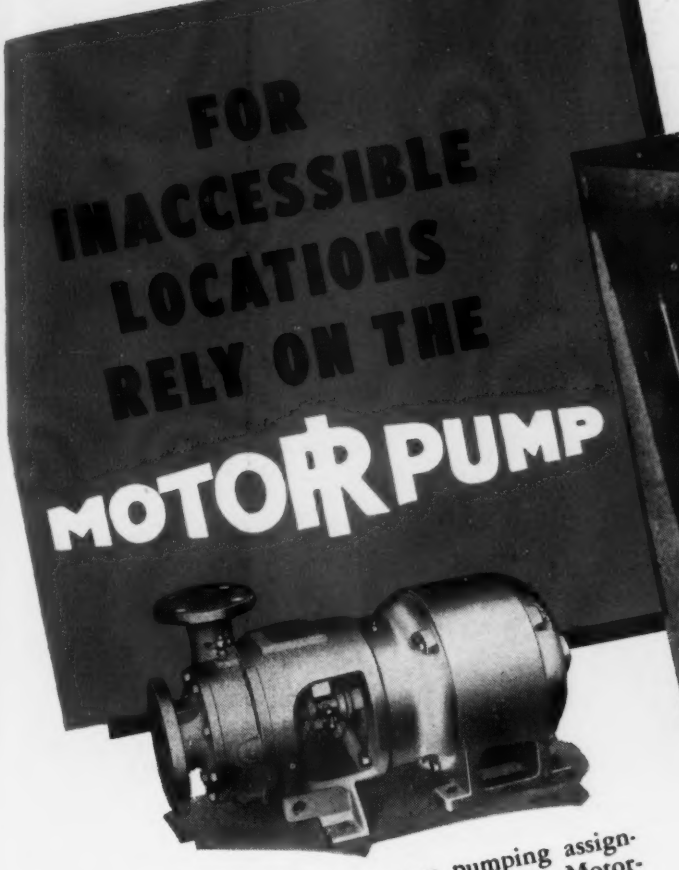
An Actual Case

Meinhard, Greeff & Co., Inc.

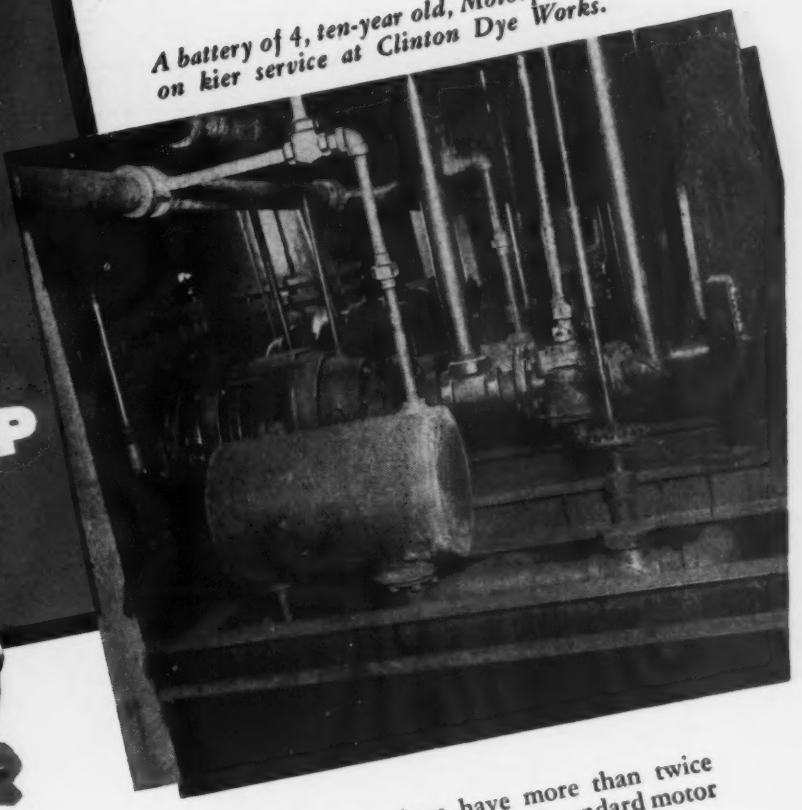
FACTORING FOUNDED ON SERVICE

51 MADISON AVE., NEW YORK CITY
ASHLAND 4-7885

FOR INACCESSIBLE LOCATIONS RELY ON THE MOTORPUMP



A battery of 4, ten-year old, Motorpumps on kier service at Clinton Dye Works.



Kier service is an undercover pumping assignment that demands the best in pumps. The Motorpump is built to be just that. That's why so many mills rely on Motorpumps for punishing services where neglect is so apt to occur.

Here are some of the hidden qualities that give Motorpumps the stamina for such continuous undercover service:

1. The single, oversize shaft for both motor and pump is designed for a maximum deflection of .001 inch at the end. This prevents impeller whip and eliminates stuffing-box troubles.
2. The oversize bearings have more than twice the radial and thrust capacity of standard motor bearings.
3. 70 years of Cameron experience are built into this hydraulic champion.
4. Simplicity—there is only one moving part—the rotor.
5. The most advanced metallurgy known to hydraulic engineers is embodied in the Motorpump.

Ingersoll-Rand engineering service is yours for the asking. Call our nearest branch office.

Ingersoll-Rand

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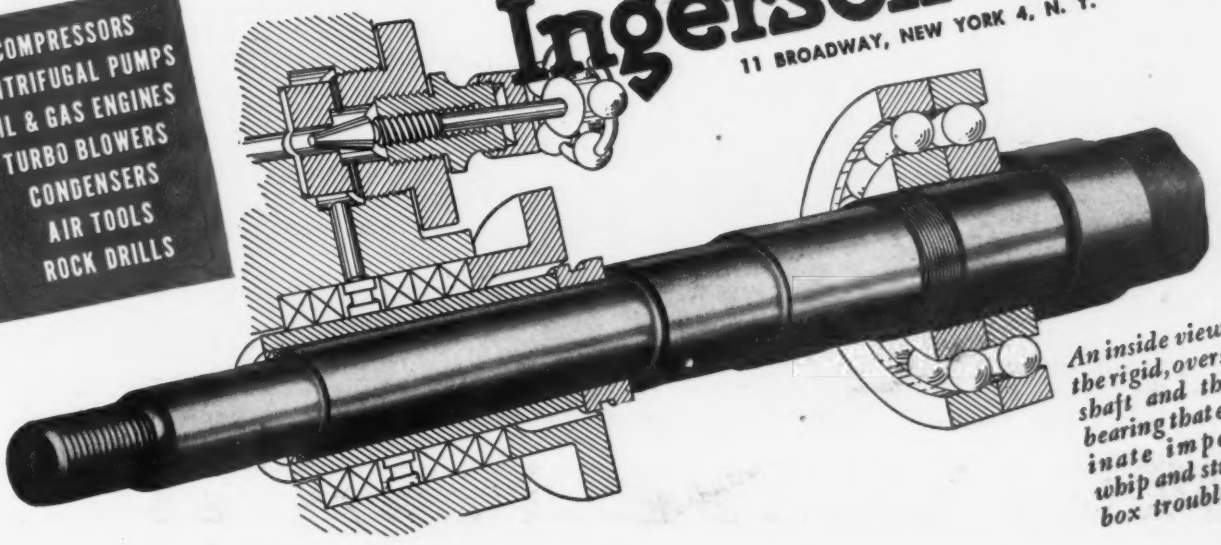
10-814

COMPRESSORS
CENTRIFUGAL PUMPS
OIL & GAS ENGINES
TURBO BLOWERS
CONDENSERS
AIR TOOLS
ROCK DRILLS



An inside view of the rigid, oversize shaft and thrust bearing that eliminate impeller whip and stuffing box troubles.

Water-Soluble Waxes

Coupling Agents

Wetting Agents

Lubricants

Leveling Agents

Spot Removing Solvents

Emulsion Chemicals

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SYNTHETIC ORGANIC CHEMICALS

CARBIDE AND CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation

UCC

30 East 42nd Street, New York 17, N. Y.

SPEEDWAY for Ball Bearings!

● This ball bearing spindle whirls at 10,000 r.p.m. and the tiny balls spin in their raceways at dizzy speeds.

To assure maximum protection of these highly polished surfaces, you need a lubricating oil that will flow freely through small clearances and will prevent the gumming which causes "spindle drag."

● Quick-acting Gargoyle Velocite Oils meet all of these requirements. They distribute instantly over all bearing surfaces and form strong films that reduce friction to an absolute minimum. Their high chemical stability assures freedom from gummy deposits.

These same special spindle oils give similar protection to spindles with plain bearings. Get them for your spindles now for savings in production time, maintenance and lubrication costs.

This illustration has been prepared with the cooperation of Whitin Machine Works

Get this Complete Lubrication Program for all your machines

- Lubrication Study of Your Entire Plant
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GARGOYLE Lubricants

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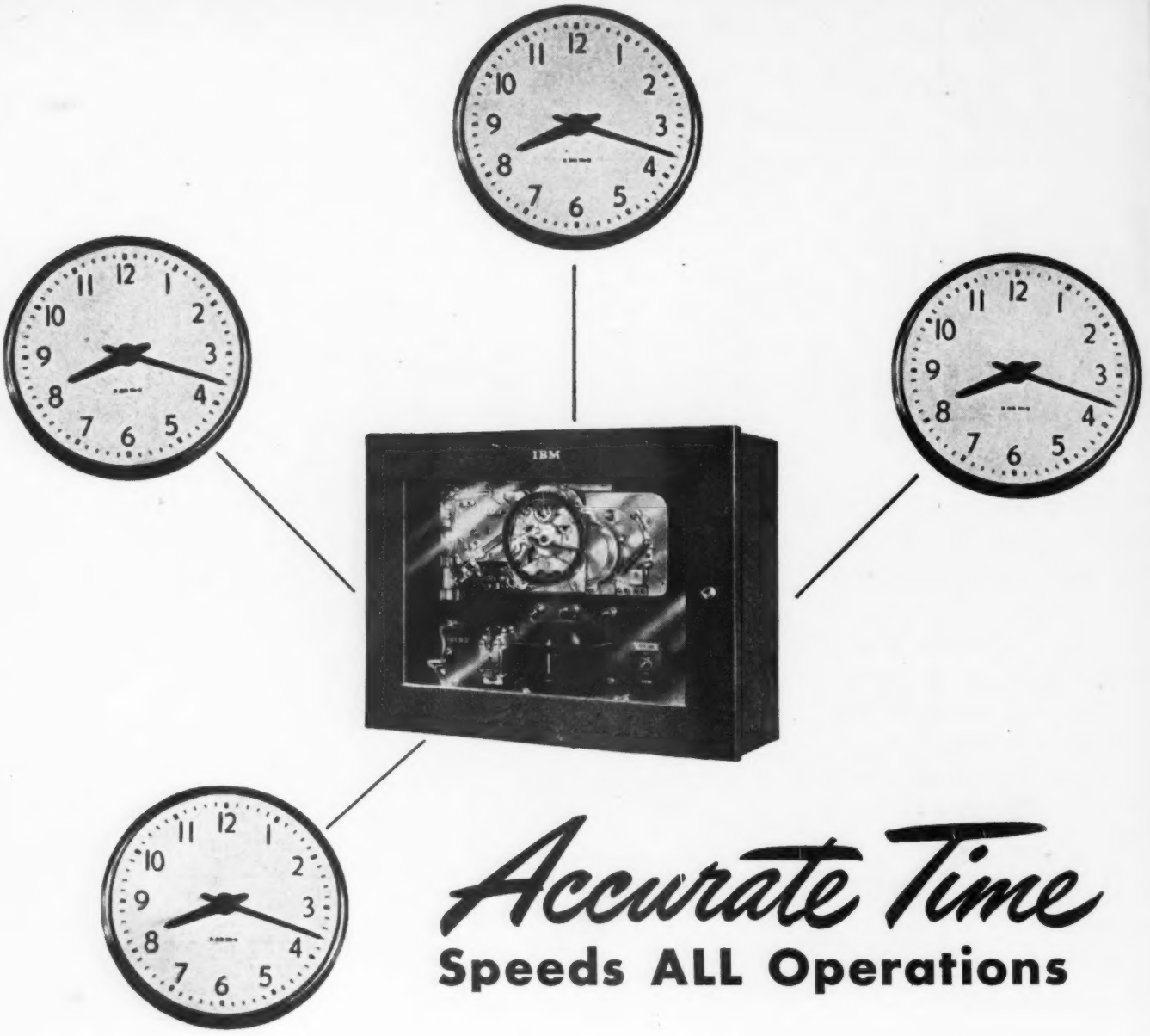

Accurate Time
Speeds ALL Operations

With the installation of an IBM Time Control and Time Indicating System, all operations can be keyed to the same accurate time.

Secondary clocks and connected time recording devices of all types are automatically self-regulated every hour by this IBM Master Time Control unit.

The latest model of this unit even provides reserve operating power for use in the event of power interruptions. The unit also automatically regulates the rate of the clock to agree with the frequency rate of the electrical supply used.

As an integral part of an IBM Time Control and Time Indicating System, this new unit automatically provides constant, accurate time year in and year out.

IBM

ELECTRIC TIME SYSTEMS AND TIME RECORDERS
ELECTRIC PUNCHED CARD ACCOUNTING MACHINES
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International Business Machines Corporation, World Headquarters Building, 590 Madison Avenue, New York 22, N. Y.

SANDOZ PRESENTS *the color achievement of the month*

Background for Beauty BY COLLINS & AIKMAN

There's plenty that's new to catch the eye of the new car buyer, but one of the most important selling features perpetuates a pre-war tradition.

As before, the most widely used automotive upholstery fabric . . . proven for style and wear . . . is Collins & Aikman's *Canda Cloth*. The fabric shown above — a blend of wool and mohair, with cotton backing — will be seen on many of the famous makes.

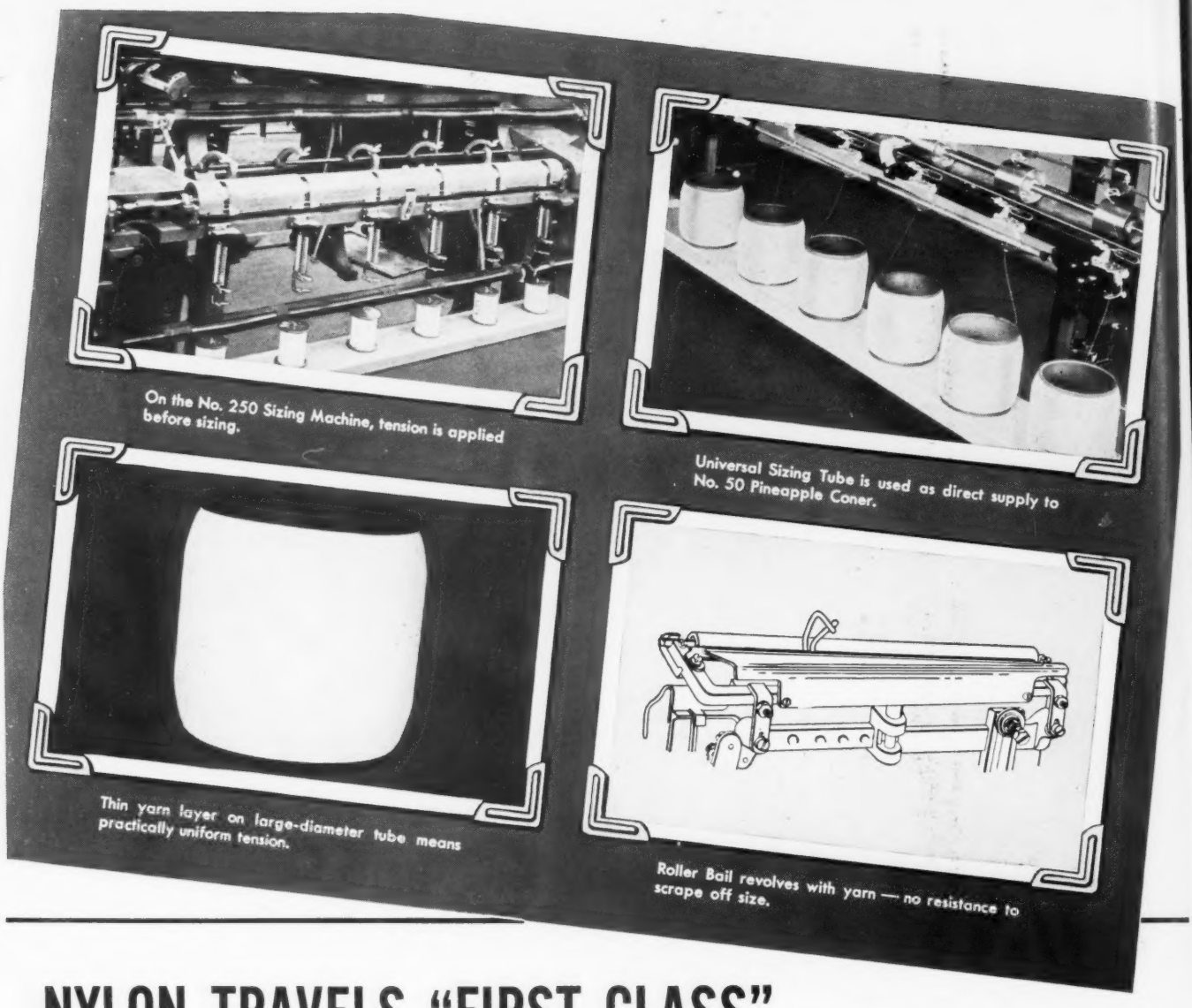
Contributing to Collins & Aikman's aims to provide upholstery fabric of color fastness and washability, is Sandoz — supplier of dyes and chemicals to many of the country's great names in textiles . . . depended on by them for an accurate perception of color popularity and products of outstanding technical excellence.

Among the Sandoz products that help textile manufacturers get the most value out of color are their *Metomega Chrome* colors, which are especially suited for men's wear because of quick dyeing and easy matching of shades as well as improved quality of stock — the complete range includes *Metomega Chrome* Brown RLL, Brown 3GL, Yellow ME, Orange ML (all patented) and Cyanine BLL and Black Blue G; recent additions *Metomega Chrome* Green BLL and Grey 2GL (patents applied for).

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you have been seeing in these Sandoz advertisements. Sandoz application laboratories are located in New York, Boston, Philadelphia, Los Angeles, Charlotte, Toronto, where stocks in wide range are carried. Other branches in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

SANDOZ *thinks ahead with textiles*



On the No. 250 Sizing Machine, tension is applied before sizing.

Universal Sizing Tube is used as direct supply to No. 50 Pineapple Coner.

Thin yarn layer on large-diameter tube means practically uniform tension.

Roller Bail revolves with yarn — no resistance to scrape off size.

NYLON TRAVELS "FIRST CLASS"
through the Universal Sizing Machine and Pineapple Coner

Special accommodations to handle extra-elastic nylon explain why both throwsters and knitters get better results with the Universal System of Sizing and Coning Nylon.

On both machines, the yarn travels in almost a straight line from supply to thread guide, encountering the fewest possible contact points . . . the amount of applied tension is the minimum required to keep the yarn under control . . . and the slow spindle start provided by the Universal Straight-Belt Drive protects the yarn against sudden strain.

Other features of yarn protection include:

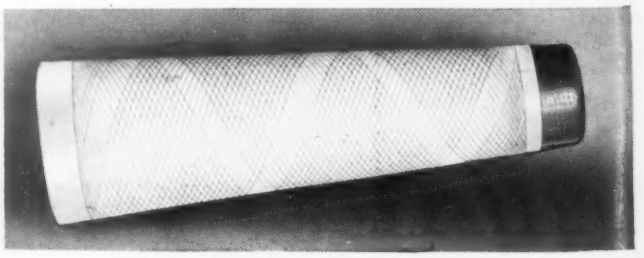
- *Chromium-plated contact points*
- *The thin yarn layer on the sizing tube — minimum change in yarn takeup speed, hence almost no change in tension*
- *True-running spindle on the No. 250 Sizing Machine — no vibration or uneven tension*
- *The Roller Bail on the No. 50 Coning Machine which revolves with the yarn at the delivery point, subjecting it to no stretch, offering no resistance to scrape off size*
- *The "forked track" Thread Guide on the No. 50 which allows the yarn to oscillate and prevents size from flaking.*

Throwsters operating these Universal machines *cone directly from the sizing tubes without intermediate re-draw.* This eliminates an operation which would disturb and possibly damage the yarn.

Universal Winding Company at Providence, Boston, Philadelphia, Utica, Charlotte, Los Angeles, Atlanta, Chicago, Montreal, Hamilton.

23-6-11

MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50



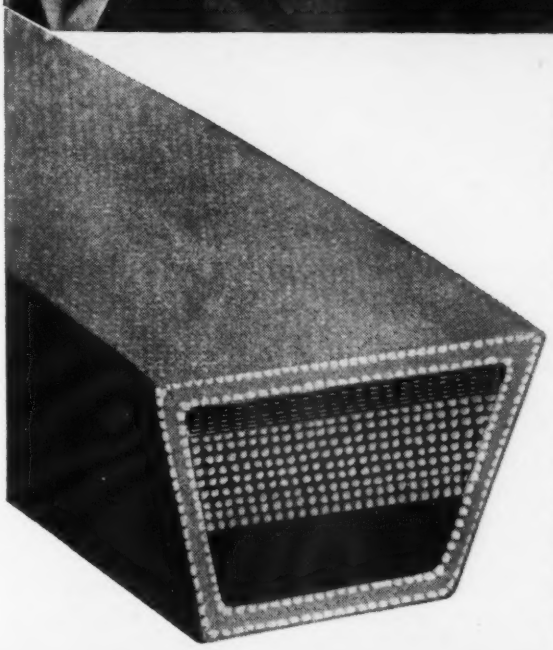
PUTTING ON THE Pressure

to give you tougher, truer-running TEXROPE V-BELTS

PRECISION curing in these powerful pressure molds gives TEXROPE Super-7 V-Belts their toughness and accuracy of section.

The molds themselves are machined to precision tolerances. Heat, pressure and curing time are accurately controlled. Skilled operators check every step of the process.

This careful curing combines strong, hard-twisted cords, rugged two-ply cover stock and shock-absorbing rubber into BETTER V-BELTS to drive your machines —uniform, long-lasting, smooth-running.



Heat-Resisting Super-7
Stands temperatures up to 180°. The TEXROPE V-Belt for most drives.

Oil-Resisting Super-7
Neoprene cover protects core against moderately oily or greasy conditions.

Oil-Proof Super-7
Made of Neoprene throughout. Use it when the belt must swim in oil.

Static-Resisting Super-7
Recommended where explosion hazard exists. Static-conducting element throughout cover won't wear off.

ONE CALL — FOR ALL V-BELT DRIVE NEEDS

Your nearest Allis-Chalmers office or dealer offers COMPLETE V-Belt Drive service: Super-7 V-Belts in all types and sizes — full range of standard, "Magic-Grip" and Vari-Pitch sheaves — Speed changers — experienced engineering aid by the originators of industry's Multiple V-Belt Drive. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN. A 2101

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TEXROPE V-BELT DRIVES

Today, You Can't Measure a

LOOM'S AGE

by Calendar Years Alone

In figuring depreciation on your present looms, watch out for the danger of a *hidden error* that can make your replacement program fall short of its full effectiveness.

It's this: Many looms are far older than you think . . . *far older than their calendar age* . . . because of the *accelerated depreciation* imposed by the years of slam-bang, non-stop service for the war effort.

Today, loom-depreciation is figured accurately only when you take into account the *degree and extent* of stepped-up wartime depreciation . . . together with the rate of depreciation that you normally use for peacetime operation.

Plainly, the prewar figure of *10% yearly replacement of a mill's looms* no longer squares up with actual present conditions, or foreseeable future needs.

So be sure to avoid this *hidden error* by making full allowance for it in figuring out your Weaveroom Modernization Program . . . which is best implemented by a fully adequate and systematic replacement fund, earmarked for the purchase of new C&K Looms.

And you can depend upon these new C&K Looms to underwrite your investment with a higher output of finer fabrics, at lower operating costs.

Crompton & Knowles Loom Works

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Crompton & Knowles Jacquard & Supply Co.
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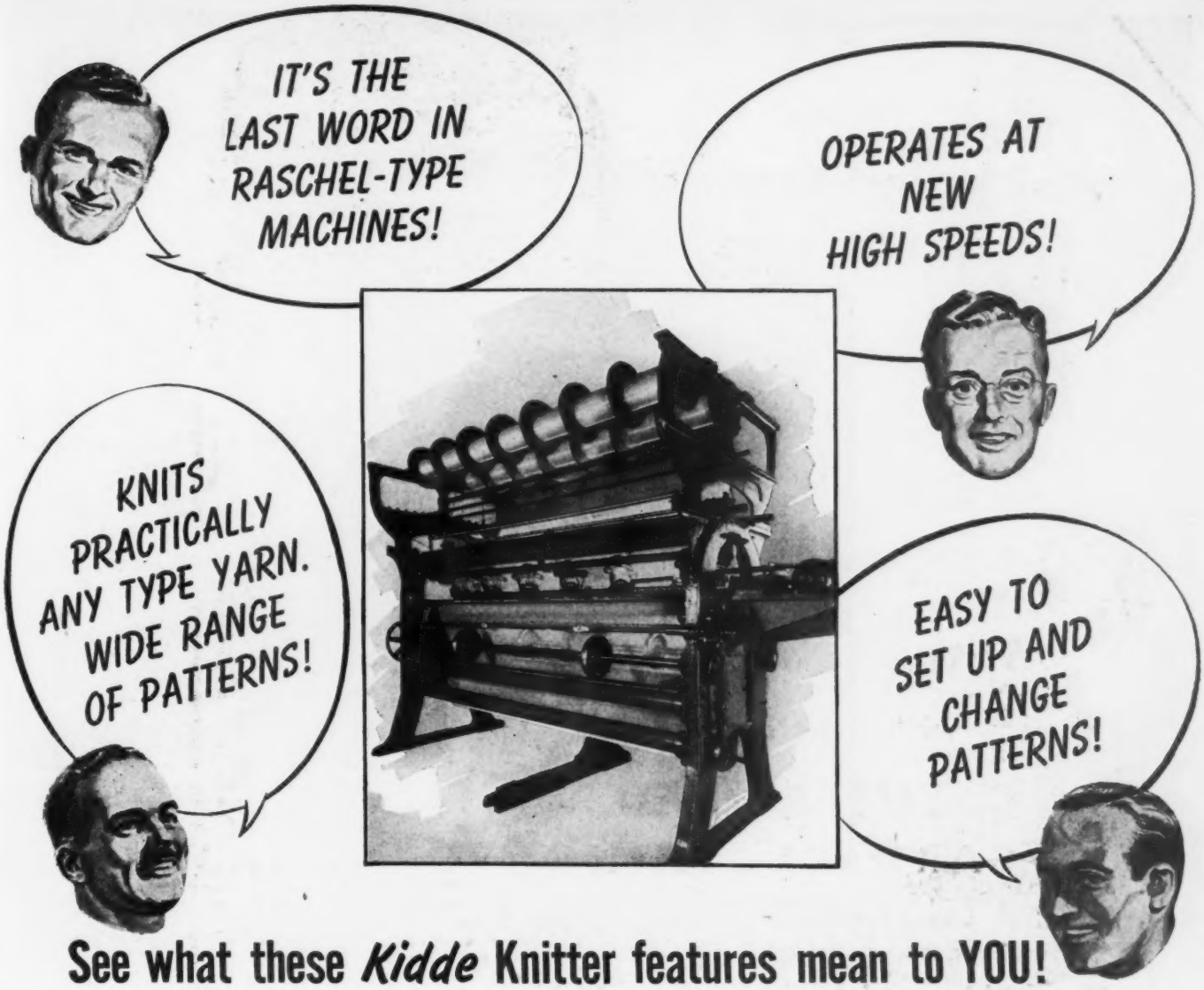
between Today's Knowledge. .
and Tomorrow's Looms


IT'S THE LAST WORD IN RASCHEL-TYPE MACHINES!
OPERATES AT NEW HIGH SPEEDS!
KNITS PRACTICALLY ANY TYPE YARN. WIDE RANGE OF PATTERNS!
EASY TO SET UP AND CHANGE PATTERNS!

See what these *Kidde* Knitter features mean to YOU!

With the *Kidde* Knitter, you can operate at exceptionally high sustained speeds, even on complicated patterns.

A radically new drum drive combines the advantages of index feed and worm feed . . . a new motion on needle bars replaces the conventional piston type movement . . . and both these features contribute to the high speeds possible.

Of course, the *Kidde* Knitter is designed to withstand the wear and tear of these high speeds, as well as the stresses of knitting such materials as rubber. Framework is of tubular construction, extra-strong, extra-rigid . . . anti-friction bearings are liberally used.

Want to see for yourself what the *Kidde* Knitter can do? A machine is in operation at our Bloomfield plant . . . we'll be glad to arrange for a demonstration. Just write us for an appointment.

The machine will knit practically any type of thread, yarn or elastic, in simple or intricate patterns. You can produce elastic fabrics, dress fabrics, veilings and nettings, curtains, narrow fabrics, shoe cloth, knitted outerwear fabrics.

You can use single or double needle bars—and can knit a full 100 inches.

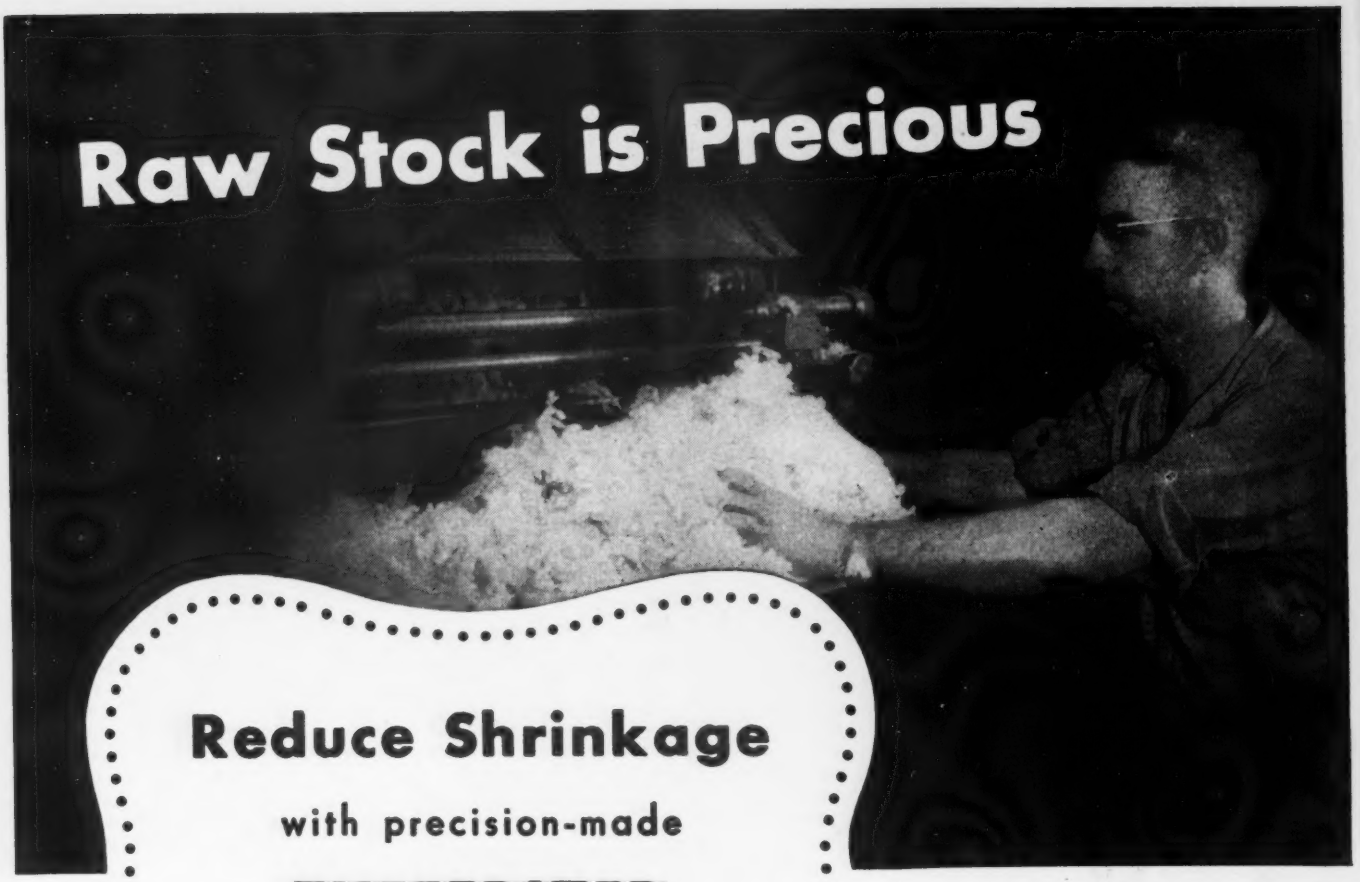
You can set up and change patterns quickly and easily. Entire swing bar assembly can be adjusted as a unit, vertically and horizontally. You can adjust stroke of latch needles and guide needles without changing cams. You can remove the full cloth roller from the side of the machine easily.

High speeds . . . wide versatility . . . unusual accessibility . . . these are the three outstanding advantages you get in the *Kidde* Knitter!

The word "Kidde" is the trade-mark of Walter Kidde & Company, Inc., and its affiliated companies.

KIDDE MANUFACTURING CO., INC. • BLOOMFIELD, NEW JERSEY

Raw Stock is Precious



Reduce Shrinkage

with precision-made

TUFFERIZED CARD CLOTHING

IF YOUR card clothing is worn, or ground down so it does not give the proper carding action *your losses in raw stock may be serious.*

Tufferized Card Clothing, properly operated, will reduce these losses and convert them into strong, uniform yarns.

Have a Howard representative examine your card clothing. He will help you determine whether waste is excessive and make suitable recommendations.

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Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all Plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

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Laurel Brand

better, more efficient, lower cost finishing for your

Yes, no matter what fiber or combination of fibers you are using, you will find there's a Laurel Product that will give you exactly the finish you desire.

For over thirty-seven years Laurel has been meeting successfully myriad challenges of leading dyers, bleachers and finishers. From this reservoir of experience and service has come the long line of Laurel processing agents to give you better, more efficient processing for every dollar you spend. Among them —

Laurel Boil-Off Oils and Compounds for more effective degumming of pure silk, rayon and cotton mixtures.

Laurel Emulsions and Softeners for better quality, better knitability, proper conditioning, proper regain.

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Laurel Olamine, cation active softener for exceptionally soft finish on dyed rayons.

Laurel Rayon Oils for faster, softer yarns, improved appearance and hand of your rayon.

Laurel Ruxite Coning Oils for superior lubrication, greater pliability, fewer breaks, higher winding efficiency.

Laurel Rayon Size for smoother, stronger, cleaner, more resilient rayon warps.

Laurel Textile Oil, a favorite of hundreds of customers because of its unusual versatility for improved quality and finish of fiber and fabric.

Laurel Wool Oils for maximum lubrication.

Laurel Wool Scouring Compounds for speedier detergent action, cleaner, more even dyeings, cleaner, softer, loftier wool.

Laurel Special Finishes, Water Repellents, Mildewproofing and Flameproofing Compounds.

soaps, oils, finishes

LAUREL SOAP MANUFACTURING CO., Inc.

Wm. H. Bertolet's Sons

ESTABLISHED 1909

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OFFICES:

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Plan now to get the extra benefits Laurel Soaps, Oils and Finishes import to your fibers or fabrics. Ask Laurel Technicians for their recommendations on your next processing job.

PREFERRED

Stencil Marked for Prompt Identification.

Illegible addressing causes delays and lost shipments.

Do your shipments receive preferred handling in transit to your customers? Stencil addressed shipments get preferred handling...

Why?

Common carriers recommend stencil addressing. Stencil addressed shipments are clear–easily read–permanently marked–and eliminate illegibility–labels coming off–speeds delivery–*due to prompt identification in transit.*

Stenciled Shipments Roll Faster!

Stencil addressed shipments keep your packages out of the carriers' Lost Shipment Warehouse.

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STENCIL MACHINE CORPORATION
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DISTRIBUTORS IN PRINCIPAL CITIES–SEE CLASSIFIED SECTION–TELEPHONE DIRECTORY–STENCIL CUTTING MACHINES

D.B.
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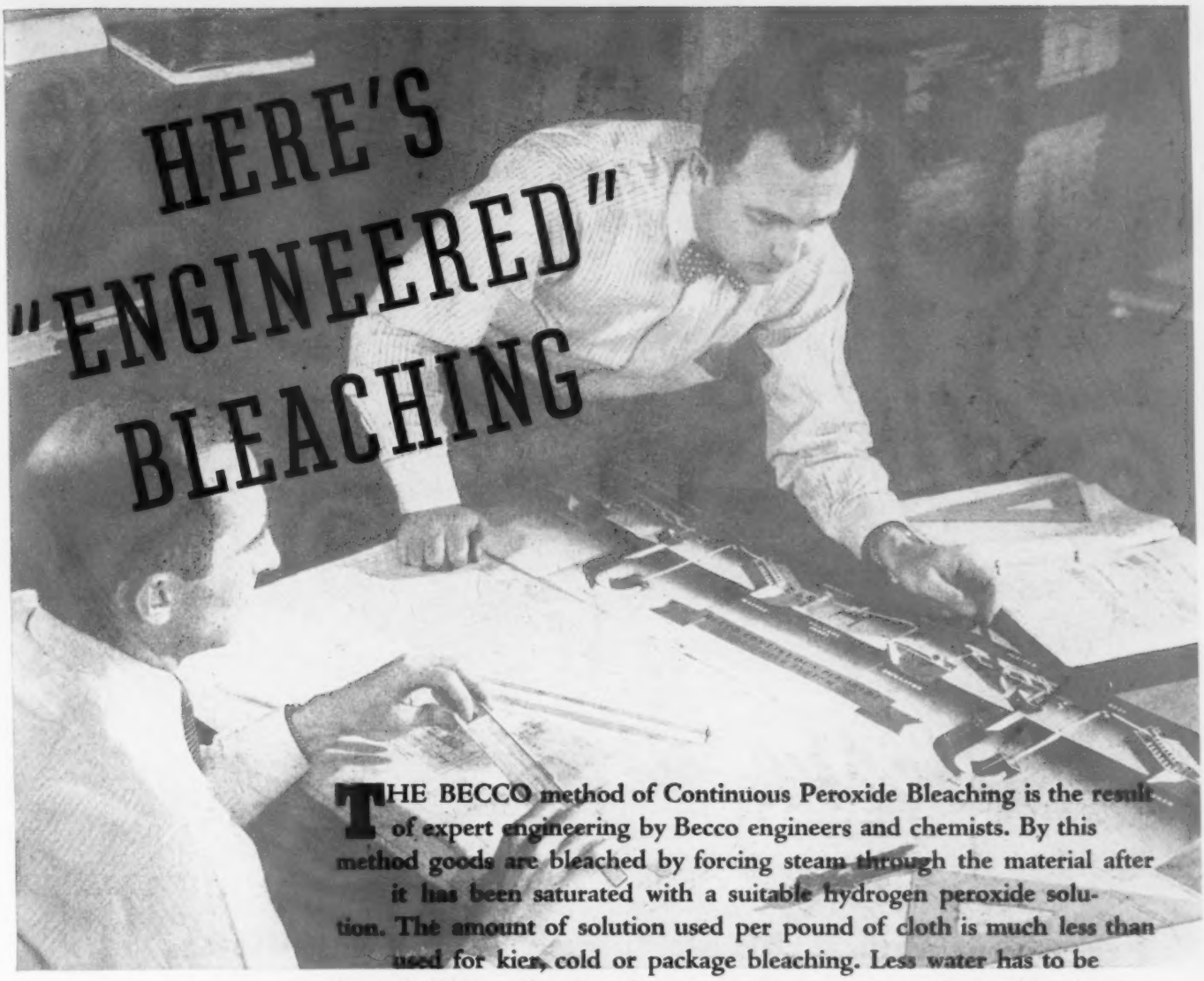
THE WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL CUTTING MACHINES

Complete Shipping Room Supplies



THE BECCO method of Continuous Peroxide Bleaching is the result of expert engineering by Becco engineers and chemists. By this method goods are bleached by forcing steam through the material after it has been saturated with a suitable hydrogen peroxide solution. The amount of solution used per pound of cloth is much less than used for kier, cold or package bleaching. Less water has to be heated. This and other factors combine to give a better bleach, in a shorter time and at lower cost. Steam bleaching means higher production and shorter processing time. With the Becco continuous bleaching system temperature control is perfect.

Becco engineers and chemists do not confine their activities to the Continuous Peroxide Bleaching of textiles. They are experts in all branches of bleaching. They will be glad to survey your plant facilities and equipment and make recommendations as to how to increase bleaching efficiency and reduce costs, if possible. They will advise you truthfully whether your volume justifies the investment required for continuous bleaching or whether another method would be most economical, whether you handle cotton, wool, knit goods, rayon or other natural or synthetic fibres. They will tell you, too, at what stage of production the bleaching should be done or is most suitable.

Write to:

BECCO SALES CORPORATION

AGENTS FOR BUFFALO ELECTRO-CHEMICAL COMPANY, INC.

6 Sawyer Avenue, Buffalo 7, N. Y.

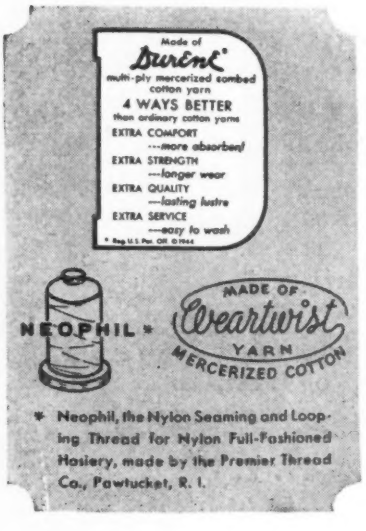
New York Boston Philadelphia Chicago Charlotte

Heave dem Bales

From wide acres of sunny fields—to the busy docks of distant cities—to the Aberfoyle plants—comes the cotton that goes into fine and lustrous Aberfoyle mercerized yarns.

A staff of skilled craftsmen turn this cotton into yarns whose extra strength—extra quality—and extra beauty—is the result of years of successful experiments and continual research.

With such a background of scientific knowledge—it is little wonder that enthusiastic customers all over the world proclaim Aberfoyle yarn, the yarn of quality . . . Aberfoyle service—the service of dependability.



* Neophil, the Nylon Seaming and Looping Thread for Nylon Full-Fashioned Hosiery, made by the Premier Thread Co., Pawtucket, R. I.

ESTABLISHED 1803

Aberfoyle

AMERICA'S OLDEST MERCERIZERS

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—and in the South
ABERFOYLE MANUFACTURING COMPANY
Belmont, North Carolina

Representatives in principal textile centers of the world

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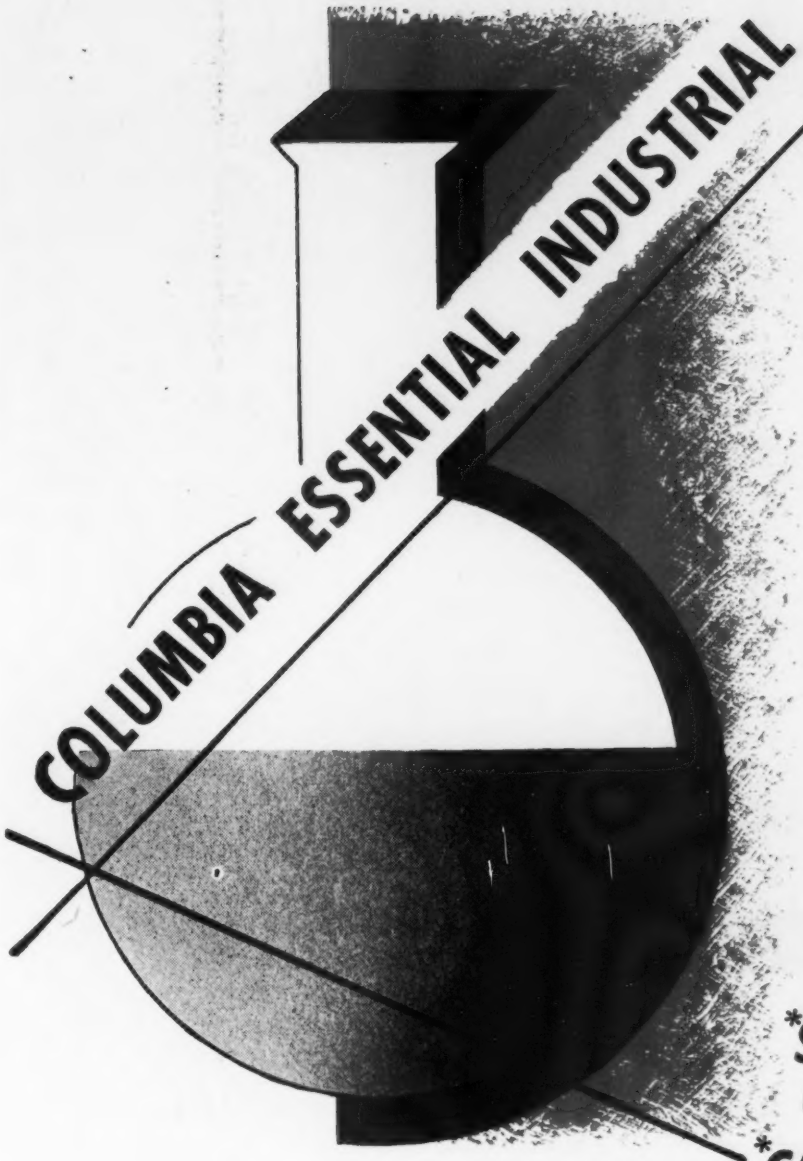

COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS

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CAUSTIC SODA

*PHOSFLAKE
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MODIFIED SODAS

LIQUID CHLORINE

CALCIUM CHLORIDE

*PITTCHLOR
(Calcium Hypochlorite)

*SILENE EF
(Hydrated Calcium Silicate)

SODIUM BICARBONATE

*SODA BRIQUETTES
(Iron Desulphurizer)

*CALCENE T
(Precipitated Calcium Carbonate)

*Trade Marks Registered
U. S. Patent Office

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION

FIFTH AVENUE at BELLEFIELD • PITTSBURGH 13, PA.

CHICAGO • BOSTON • ST. LOUIS • PITTSBURGH • NEW YORK • CINCINNATI • CLEVELAND
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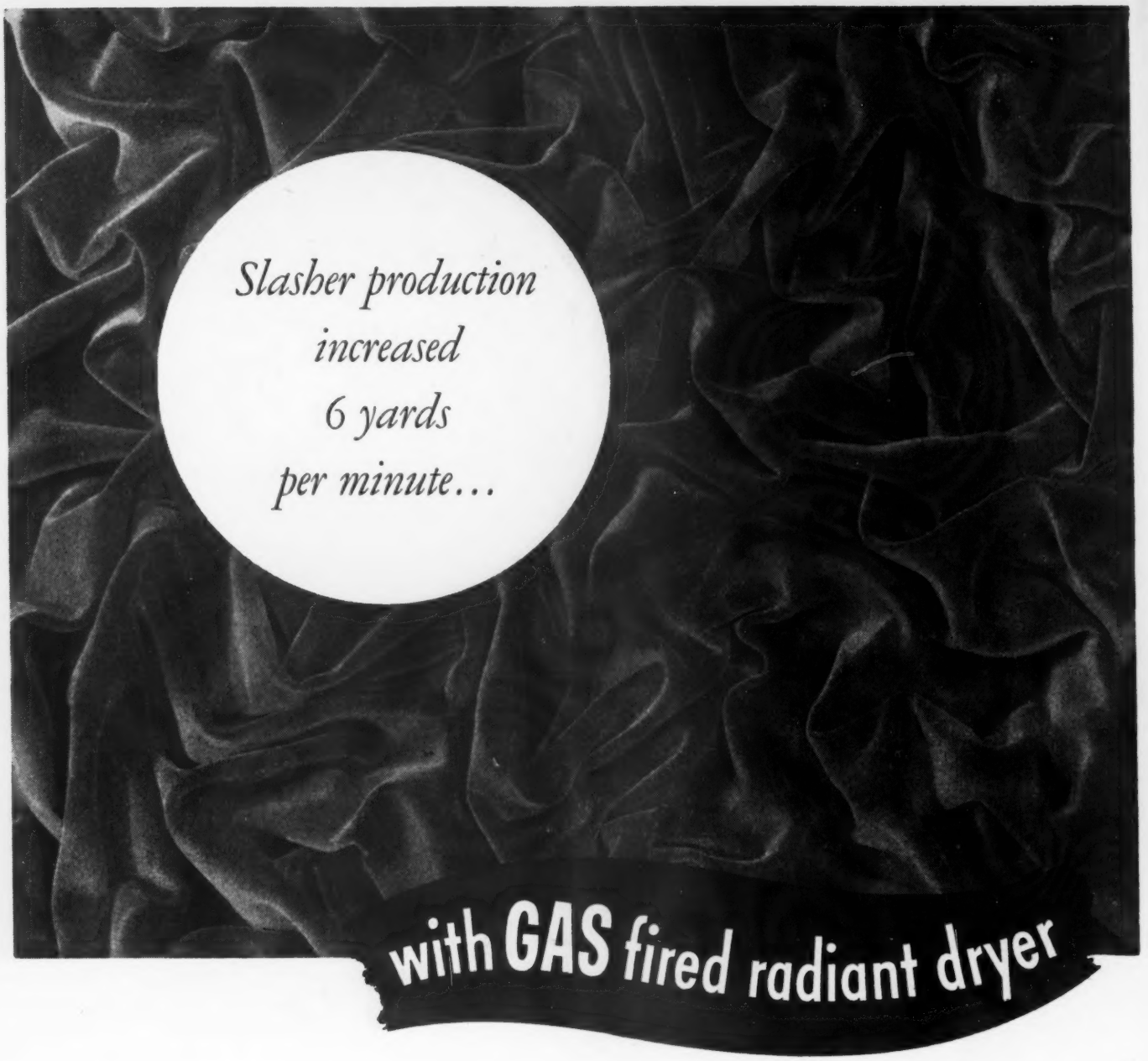


For all textile operations requiring heat, GAS is unsurpassed as a production-line fuel. The superintendent of one of the largest South Carolina mills, discussing the installation of Gas-fired radiant dryers on cylinder-type slashers reported, **"Before installation of the burner the slasher speed was approximately 27 yards-per-minute . . . With the burner added, the speed was increased approximately 18%. Our present standard speed for this style is 33 yards-per-minute."**

This executive's experience with GAS is typical of the production increases in mills turning out every kind of fabric. Compared with other available heat sources GAS is the ideal heating medium for textile processing. GAS is flexible, clean and economical; modern Gas equipment is dependable while controls are simple and accurate. Your Gas Company can furnish details on applications of GAS in your production line.

AMERICAN GAS ASSOCIATION

420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

MORE AND MORE...

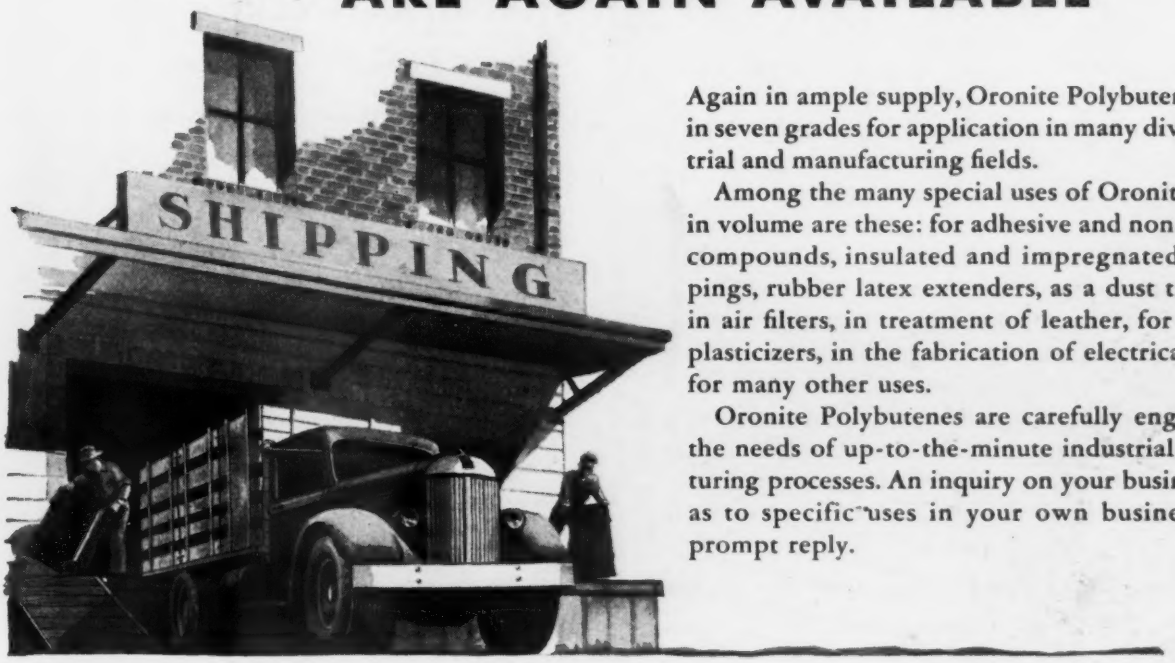
THE TREND IS TO GAS

FOR ALL INDUSTRIAL HEATING

ORONITE CHEMICALS
Reg. U. S. Pat. Off.

THE NAME TO WATCH IN CHEMICALS

ORONITE POLYBUTENES ARE AGAIN AVAILABLE



Again in ample supply, Oronite Polybutenes are offered in seven grades for application in many diversified industrial and manufacturing fields.

Among the many special uses of Oronite Polybutenes in volume are these: for adhesive and non-drying gasket compounds, insulated and impregnated paper wrappings, rubber latex extenders, as a dust trapping agent in air filters, in treatment of leather, for paraffine wax plasticizers, in the fabrication of electrical devices, and for many other uses.

Oronite Polybutenes are carefully engineered to fill the needs of up-to-the-minute industrial and manufacturing processes. An inquiry on your business letterhead as to specific uses in your own business will bring prompt reply.

1240

TYPICAL TESTS:

	No. 8	No. 12	No. 16	No. 20	No. 24	No. 32	No. 64
Flash Point, Clev.°F.	315	340	360	380	435	500	540
Viscosity 100°F. SSU	358	3390	5425	17160	49750	167500	347600
Viscosity 210°F. SSU	52	154	210	528	1060	3065	6075
Viscosity Index	71	75	80	100	104	115	119
Pour Point °F.	—30	—5	0	10	20	40	55
Solid Point °F.	—35	—10	—5	5	15	35	50
Gravity, API	35.4	32.0	31.0	29.8	27.9	26.0	25.0
Spec. Gravity	.8478	.8654	.8708	.8772	.8877	.8984	.9042
Lbs. Per Gallon	7.059	7.206	7.251	7.305	7.392	7.481	7.529
Molecular Weight	370	530	600	700	900	1200	1500
Neut. Number	.10	.10	.10	.05	.02	.01	.01
Sap. Number	.3	.3	.2	.2	.2	.1	.1
Carbon %	0	0	0	0	0	.01	.02
Sulphur %	.01	.01	.01	.02	.02	.02	.04
Sligh Oxidation Test	0	0	0	0	1	1	2
Color ASTM (Max.)	1½	1½	1½	2	2	2	2
Dielectric Strength	35,000	35,000	35,000	35,000	35,000	35,000	35,000

ORONITE CHEMICAL COMPANY

Russ Building, San Francisco 4, California
White-Henry-Stewart Bldg., Seattle 1, Wash.
30 Rockefeller Plaza, New York 20, N.Y.
Standard Oil Bldg., Los Angeles 15, Calif.

Chemical Specialties for the Textile Industry

CHEMISTS *develop*

Brytex products, each specifically designed for use in a phase of textile processing.

MANUFACTURERS *apply*

Brytex products with full assurance of their high quality and laboratory-tested uniformity.

THE PUBLIC *benefits*

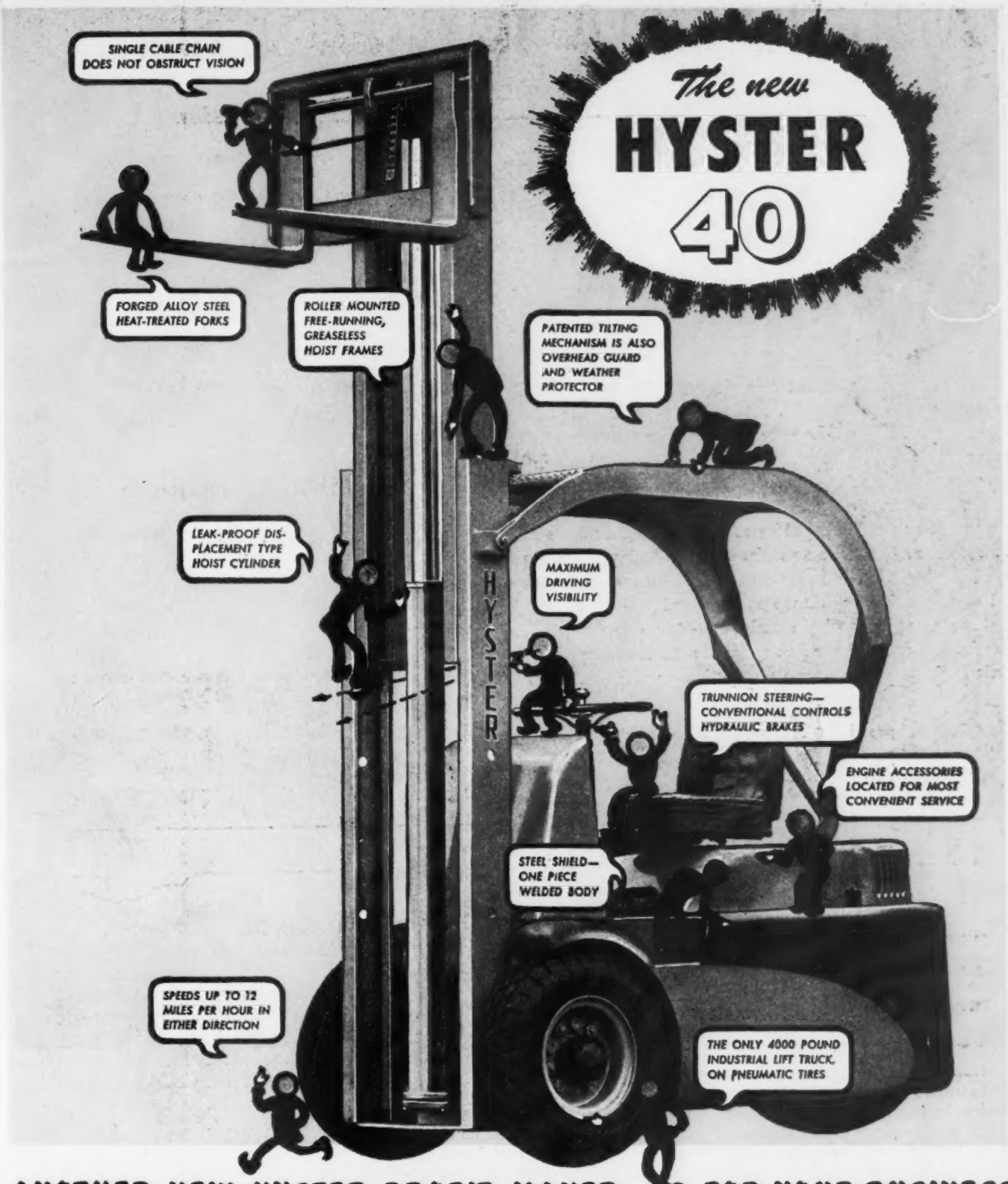
by the production of finer fabrics of improved appearance, longer life and better value.

Brytex
PRODUCTS

New Developments
mean
Improved Fabrics
mean
Greater Sales

Booklet "BP"
available on request

BRYANT CHEMICAL CORPORATION
North Quincy 71, Mass.


SINGLE CABLE CHAIN DOES NOT OBSTRUCT VISION
The new
HYSTER
40
FORGED ALLOY STEEL HEAT-TREATED FORKS
ROLLER MOUNTED FREE-RUNNING, GREASELESS HOIST FRAMES
PATENTED TILTING MECHANISM IS ALSO OVERHEAD GUARD AND WEATHER PROTECTOR
LEAK-PROOF DISPLACEMENT TYPE HOIST CYLINDER
MAXIMUM DRIVING VISIBILITY
HYSTER
TRUNNION STEERING— CONVENTIONAL CONTROLS HYDRAULIC BRAKES
ENGINE ACCESSORIES LOCATED FOR MOST CONVENIENT SERVICE
STEEL SHIELD— ONE PIECE WELDED BODY
SPEEDS UP TO 12 MILES PER HOUR IN EITHER DIRECTION
THE ONLY 4000 POUND INDUSTRIAL LIFT TRUCK ON PNEUMATIC TIRES

ANOTHER NEW HYSTER PROFIT-MAKER FOR YOUR BUSINESS

A 4000-pound Industrial Lift Truck on pneumatic tires!

The new Hyster "40" with 2-ton lifting, transporting, stacking capacity *has the ability to solve 7 out of every 10* materials handling problems in the average business. Pneumatic tires for fast, smooth work, indoors—outdoors. Gasoline powered. Powerful, efficient hydraulic lifting mechanism. Many new engineering improvements. Easy to operate, easy to service.

The new Hyster "40" is fully illustrated and described in Bulletin 1016. Write for your copy.

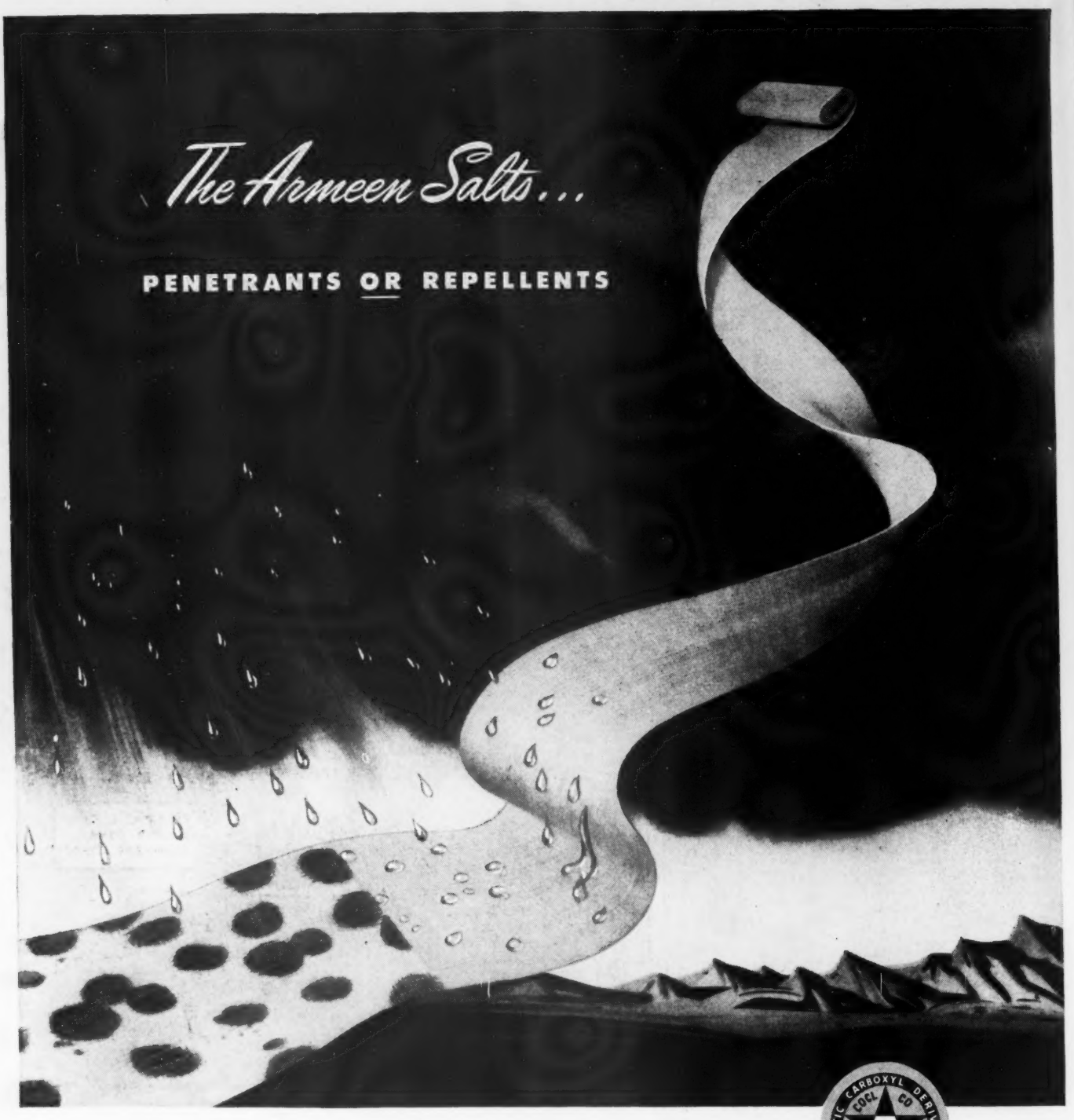
DISTRIBUTOR SALES AND SERVICE IN PRINCIPAL CITIES

HYSTER COMPANY

2922 N. E. Clackamas, Portland 8, Oregon
1822 North Adams Street, Peoria 1, Illinois

WORLD'S LARGEST MANUFACUTRER OF PNEUMATIC TIRE LIFT TRUCKS AND STRADDLE TRUCKS

HYSTER



Penetrants or Repellents—the choice is yours, for the Armeens (high molecular weight aliphatic amines) are remarkably versatile. So versatile, that they merit consideration for your products or processes.

Neutralized with certain acids, they form unique and interesting salts...

As Penetrants . . . Because a long straight carbon chain is present in these fatty amines, they form surface-active compounds when water-solubilized by neutralization with monovalent acids such as acetic or hydrochloric. In this state they aid the penetration of water into textiles.

As Repellents . . . Neutralization with the proper acid or double-decomposition with the proper salt converts the Armeen penetrants into repellents. Di- or polyvalent mineral acids or their salts, or higher molecular weight organic acids form water-insoluble Armeen salts which are effective water-repellents for textiles. Such Armeen salts wet easily with napthas and oils without dissolving in them.

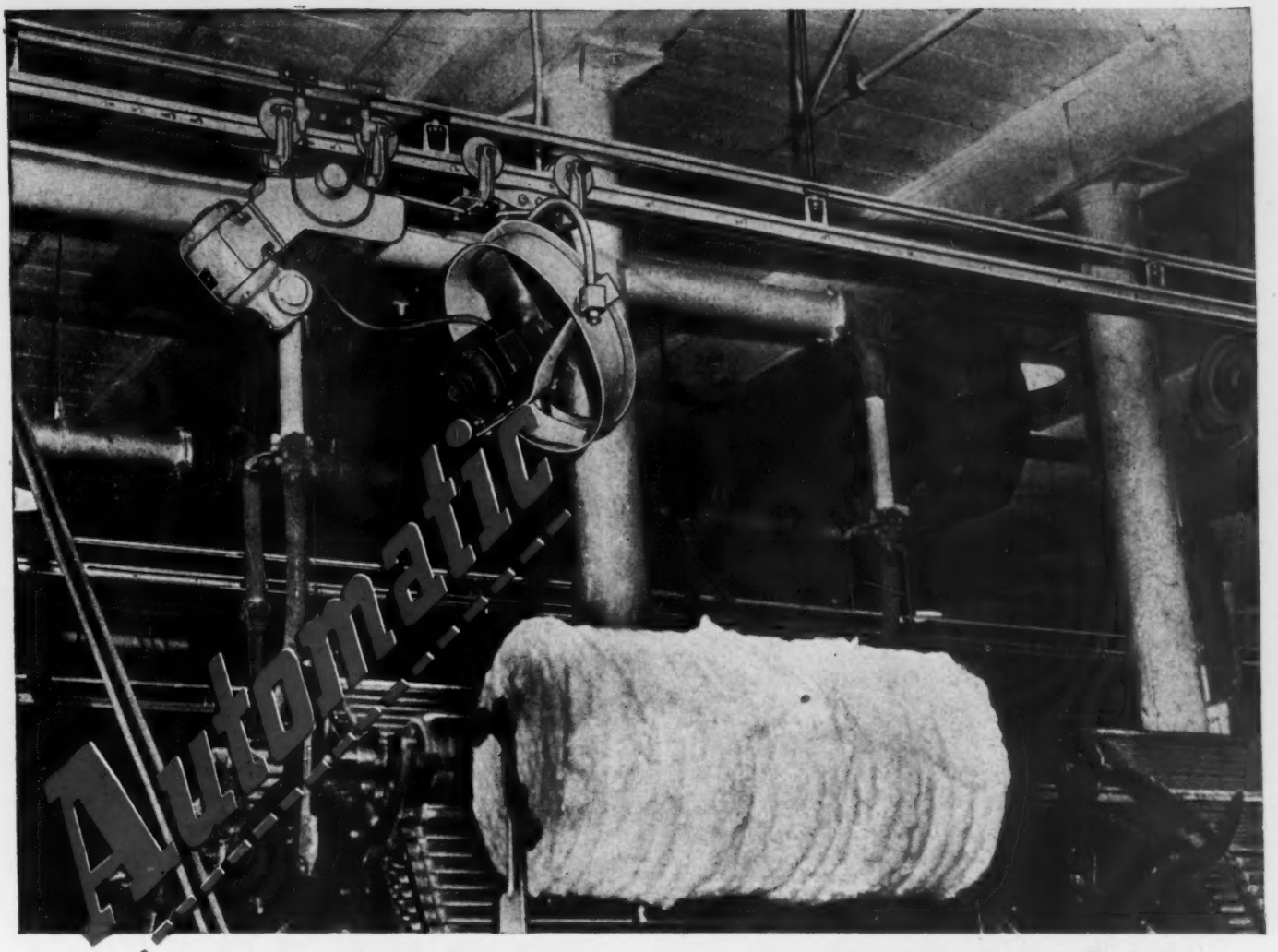
The Armeens and their acetate salts—the Armacs—are also cationic emulsifiers with unusual properties.

Write today for our new booklets, "The Armeen Salts—Penetrants or Repellents" and "The Armeens and Armacs as Cationic Emulsifiers".

ARMOUR
Chemical
DIVISION

Armour and Company

1355 West 31st Street • Chicago 9, Illinois



CLEANER ELIMINATES HAND CLEANING

In the card room illustrated above, lint was allowed to accumulate for three weeks. With 220 cards running 13 # per hour on low to medium 7/8" to 1" cotton, one can readily realize the accumulation after this period. In two complete cycles of the cleaner, operating at 100 feet per minute on 2300 feet of monorail track, the high velocity fan successfully removed all lint from pipes, belts, motors and other ceiling equipment so that ends could be put up and the cards started.

With the cleaner efficiently preventing any accumulation on the ceiling, manual cleaning in this room was eliminated during the past six months.

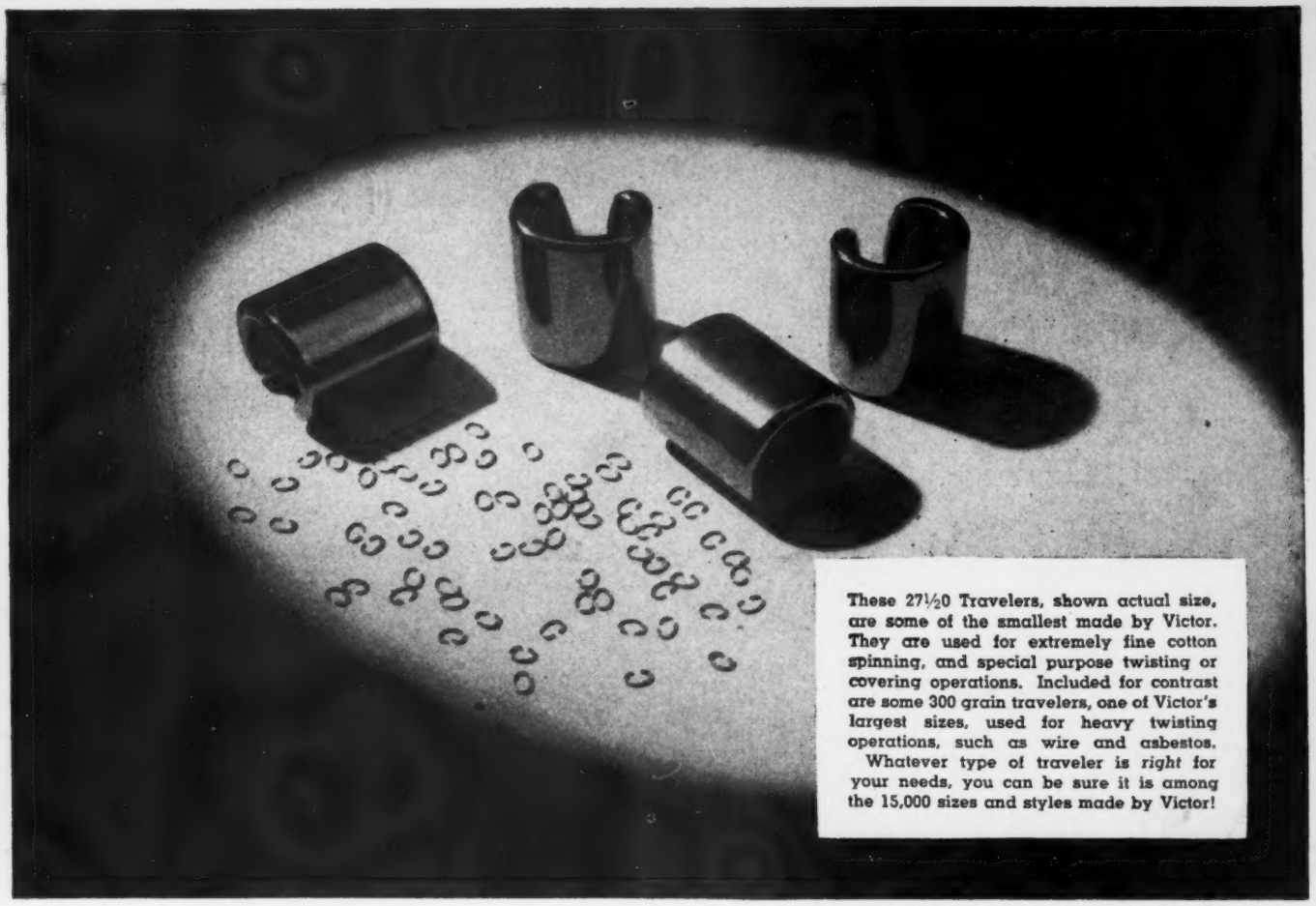
This installation will pay for itself from the above savings alone, in just about a year. After the first week's operation with the cleaner, a marked pickup in employee morale was noted due to improved conditions in the card room.

Let an American MonoRail Engineer tell you the complete story of this remarkable new installation. He will be glad to give you an estimate of the saving you can make by cleaning your card room ceiling automatically. Write Today!

IT PAYS TO CLEAN *Automatically*

THE AMERICAN **MONORAIL** COMPANY

13108 ATHENS AVENUE CLEVELAND 7, OHIO



These 27½0 Travelers, shown actual size, are some of the smallest made by Victor. They are used for extremely fine cotton spinning, and special purpose twisting or covering operations. Included for contrast are some 300 grain travelers, one of Victor's largest sizes, used for heavy twisting operations, such as wire and asbestos.

Whatever type of traveler is *right* for your needs, you can be sure it is among the 15,000 sizes and styles made by Victor!

HOW TO STOP TRAVELERS FROM *Growing*

A TRAVELER is the smallest piece of equipment you use in fiber processing. But, if you choose the wrong traveler, you'll see it "grow", prodigiously, in its influence on yarn production, until it blocks your best efforts to meet delivery schedules and quality standards. A little traveler may become your biggest "headache".

With so many new synthetics and blends coming up for processing, it is more difficult today than ever to choose the *right* traveler. Experience with conventional fibers helps. But, to save precious time in setting up smooth-running spinning and twisting, you need up-to-the-minute information.

You can get that kind of information from a man whose job it is to keep abreast of every new development. The Victor Service Engineer is fully prepared to help you keep out of traveler trouble, and more than that, help you raise production and quality, often well above what you expected.

Make sure you are getting the most and the best from your frames, whether you are running blends, straight synthetics, or conventional fibers. Write, wire, or phone, and a Victor Service Engineer will call promptly.

•

Keep a Step ahead with

VICTOR Ring Travelers

VICTOR RING TRAVELER COMPANY

PROVIDENCE, R. I. . . . . 20 Mathewson St. . . . . Tel. Dexter 0737

GASTONIA, N. C. . . . . 173 W. Franklin Ave. . . . . Tel. 247

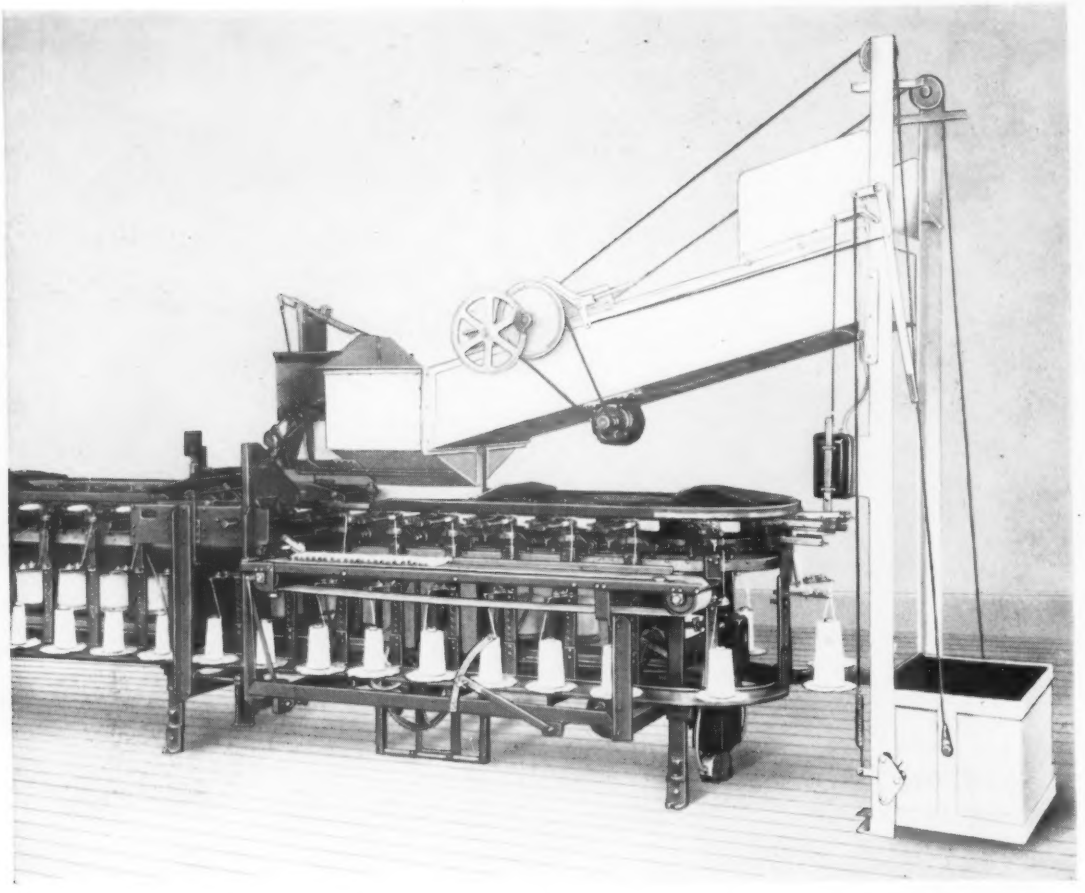
As for the past 67 years, we welcome Christmas . . . pleasantest interlude in the business season . . . a time to express to our ever-widening circle of friends in the many industries we serve, our deep appreciation of their cooperation throughout the year.

We take this opportunity to wish you "A Very Merry Christmas" and good fortune for the coming year.

NATIONAL ANILINE DIVISION
Allied Chemical & Dye Corporation

AUTOMATIC TRAVELING SPINDLE FILLING WINDER

FULL AUTOMATIC OPERATION



Our Standard Rayon Quiller has 100 spindles and takes the regular 7⅜", Draper head, bobbin wound about 1" in diameter and runs at a spindle speed of 5,000 R.P.M.

The wound bobbins are handled very gently and placed on a wide apron, side by side, where they can be examined and marked and then placed directly on pin boards.

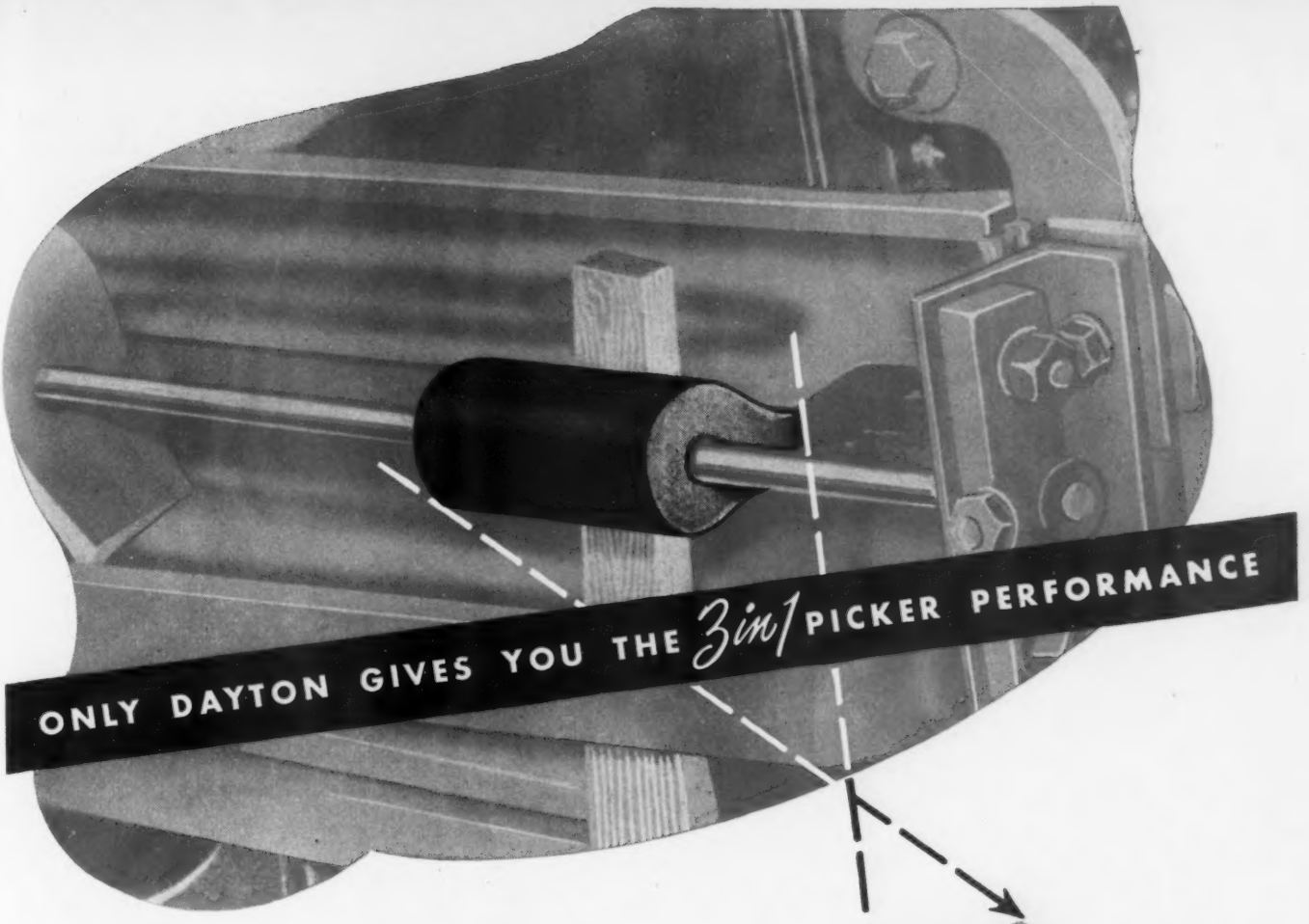
The empty bobbin handling is wholly automatic, the bobbins being delivered to a box which rises and dumps itself and returns automatically, and there is a large reserve of about 4,000 bobbins in the hopper and chute.

The wind on the bobbins is of a new type, overlapping layers, so that an excellent weaving bobbin is obtained without over-tensioning.

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, Mr. L. S. Ligon, Greenville, S. C.

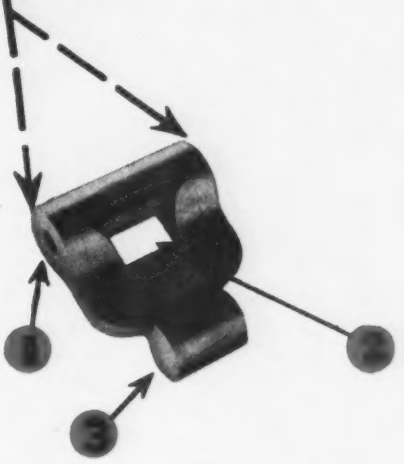


The Dayton Reversible Drop Box Picker is an excellent example of what we call a "tailored" product—tailored to do a job, to save you money and to up your production. As you know, a reversible drop box picker has three functions to perform. By the very nature of those three functions, the three parts required to perform them should have different physical properties. Those three physical properties have been incorporated into the Dayton Drop Box Picker. For details read the captions, right.

Dayton Pickers, like all Dayton textile products, outlast and outperform because *we know how to build into rubber products the precise properties dictated by the nature of the work to be done.*

If you are not already using Dayton Pickers a trial order will convince you. Write for prices and complete information.

THE DAYTON RUBBER MANUFACTURING COMPANY
Dayton 1, Ohio • Waynesville, N. C.
Main Sales Office: Woodside Building, Greenville, S. C.



1 Around the spindle hole of Dayton's Reversible Drop Box Picker is a hard composition bearing surface. It won't wear egg-shaped. No lubrication required.

2 Where the picker stick contacts this picker the proper amount of cushion has been built in to take the impact. Less wear here.

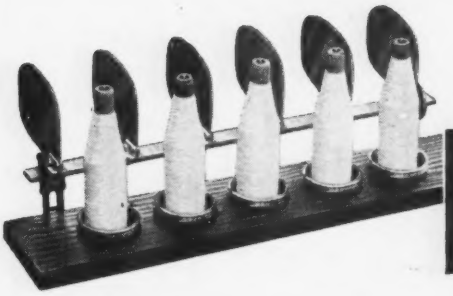
3 A still softer composition is used at the shuttle contact. This eliminates shuttle point loosening, helps assure a perfect throw throughout the life of the picker.

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

FAMOUS DAYCO SYNTHETIC RUBBER PRODUCTS SINCE 1934

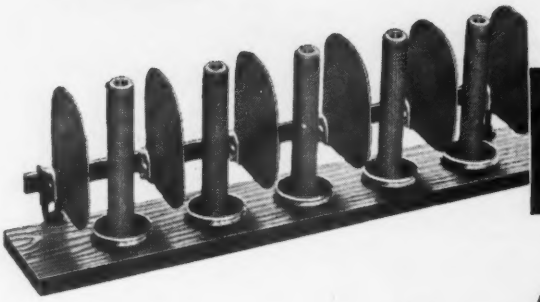
HAVE YOU SEEN THE NEW MEADOWS AIRCRAFT ALLOY LIGHT-WEIGHT SEPARATOR SHIELDS?



Tilt-back type for spinning. Rail widths up to 3½".

These remarkable new light-weight, strong-as-steel aluminum alloy Separator Shields are reducing movable live weight from as much as 350 lbs. in the old standard design shield assembly, to as little as 35 lbs. per frame for the Meadows Shield Assembly.

- *Reduces live weight and vibration, and wear of cams, worm gears and lifter rod bearings.*
- *Lighter travelers can be used, with less power required; less wear of rings and travelers.*
- *Fewer ends down: some mills reporting as much as 27% less with Meadows light-weight shields.*
- *Made from high strength aircraft aluminum alloy chemically inert.*
- *Solid blades (not slotted) collect less lint and fly, and cause less wear on yarn, resulting in smoother yarn.*



Tilt-back type for heavy spinning and twisting. Rail widths 3½-4".

Very little time required for installation. In ordering for trial frame, specify rail width, thickness of back flange, gauge, count of rings in each rail on one side only—as 24—22—22—22—24.

Ask our representatives to measure your most troublesome frame for a trial installation. We supply blades, alloy aluminum bar drilled to your gauge and ring-count, the proper support hangers and necessary screws and washers. Prompt deliveries. *Repair and maintenance item.*

Stationary type B-330 for heavy twisting and worsted frames. Rails 4½ to 6".

Representatives

JAMES P. COLEMAN,
P. O. Box 1351, Greenville, S. C.

WALTER S. COLEMAN,
P. O. Box 722, Salisbury, N. C.

MATTHEWS EQUIPMENT CO.,
93-A Broadway, Providence, R. I.

SIZES

B-230-10	2⅞" wide by	3¾" high
B-230-1	3⅛" wide by	4" high
B-230-9	3-7/16" wide by	4½" high
B-230-8	3¾" wide by	5" high
B-330	5" wide by	7" high

Movable type bar 3/16" by ¾"

MEADOWS MANUFACTURING CO. · ATLANTA, GA.

. . . . Ball-bearing Specialists to the Textile Industry . . . .

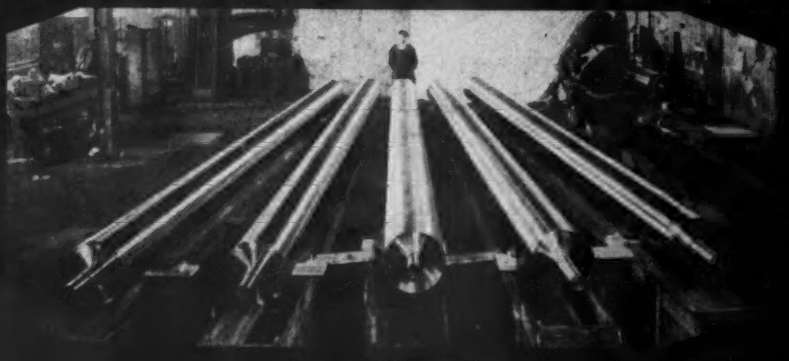
USE PARAMUL 115
today's answer to better water repellent and stain resistant fabrics . . .
PARAMUL 115 IMPREGNATES THE FIBRES
BECAUSE OF ITS FINE PARTICLE SIZE—
EASILY AND ECONOMICALLY APPLIED—
CYANAMID
AMERICAN
COMPANY
Among Cyanamid Products for the Textile Industry Are . . .

UNISTEL

STAINLESS STEEL

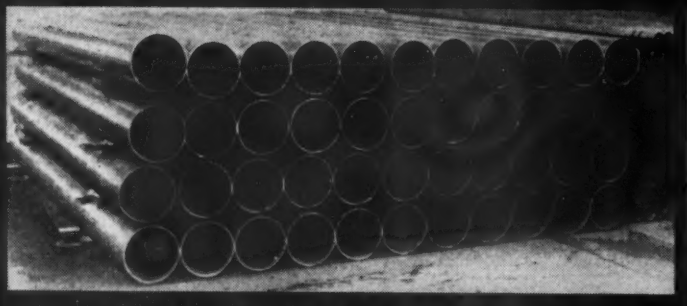
BACK DRYERS
CAN DRYERS
ROLLS
WELDED TUBING
KETTLES
TANKS
CUSTOM BUILT EQUIPMENT
FABRICATED PIPING

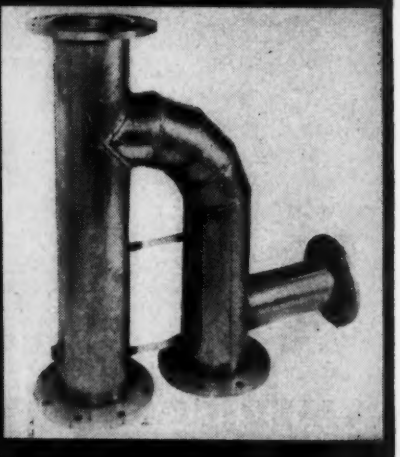
Where pressures are a factor we construct in accordance with the A.S.M.E. code.



Our experience covers all types of stainless steel. Consult us on your corrosion problems.

Stainless Rolls





Left—Custom Built Stainless Equipment
Above—Welded Stainless Tubing
Right—Fabricated Stainless Piping

Engineers—Designers—and Builders of Back Dryers, Can Dryers, Kiers, Kettles, etc.

UNITED STEEL OF AMERICA, INC.

30 ROCKEFELLER PLAZA
NEW YORK 20, N. Y.

Canadian Representatives: United Steel Corporation Ltd. of Canada, Toronto

Ignoring the sign

. . . won't lessen the danger!

You'd be guilty of reckless driving if you simply ignored a danger sign . . . and you'd be just as guilty of reckless operation if you ignored the obvious warning above.

Can you match your competitors' production? — his quality? — his costs? If not, now is the time to make your preparations to put yourself in a stronger competitive position.

Let us consider your Spinning Room for instance. Do you find that you are still spinning wool by out-moded methods, or are the machines you are using worn-out, battle-scarred, and obsolete? If your answer is "yes", it is time to check the benefits of the WHITIN Model E Wool Spinning Frame. Unsurpassed in performance, in quality, and quantity of production, it's easy to operate and easy to keep operating. An installation of these machines will keep you well abreast of any competition.

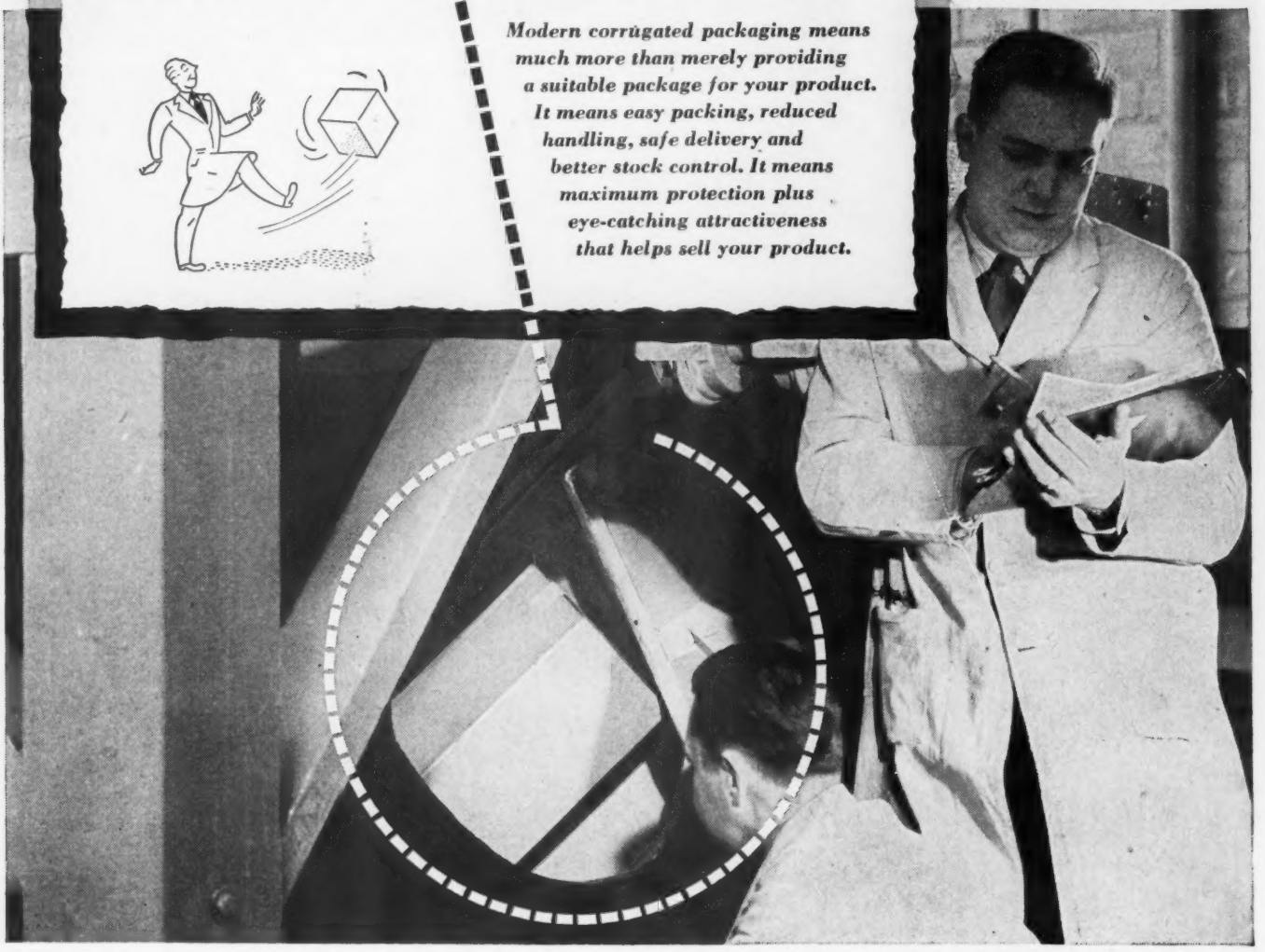
★ ★ ★ *Whitin* **MACHINE WORKS** ★

WHITINSVILLE • MASSACHUSETTS

CHARLOTTE, N. C. ATLANTA, GA.

BETTER "KNOW-HOW"... than "Guesswork"

Modern corrugated packaging means much more than merely providing a suitable package for your product. It means easy packing, reduced handling, safe delivery and better stock control. It means maximum protection plus eye-catching attractiveness that helps sell your product.



MODERN PACKAGE ENGINEERING
DOES A THOROUGH JOB

Prepare your new package design *now*. Then, as soon as raw materials again become readily available, you can *quickly* cash in on your products' full potentialities. A corrugated shipping box can be engineered in the H & D Package Laboratory to meet your particular packaging problems. Here "know-how" is based upon experience and research. Here thousands of corrugated boxes, large and small, are designed and engineered to meet every conceivable packaging situation, at the factory, in transit, in storage, at point-of-sale, in the hands of the consumer. Let the H & D Package Laboratory show you the advantages of modern corrugated package engineering. "How to Pack It" tells the complete story. The Hinde & Dauch Paper Co., Executive Offices, 4611 Decatur St., Sandusky, Ohio.

REG. U. S. PAT. OFF.

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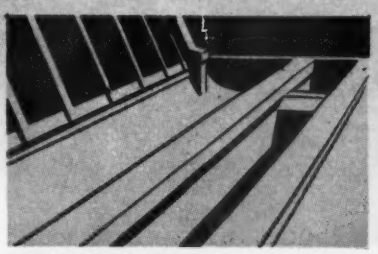
FACTORIES IN: Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

For METAL *or* MASONRY..
...be sure it's HYDRALT*

FOUNDATIONS can be adequately dampproofed with Hydralt... applied preferably in two coats to a total film thickness of not less than 3 gallons per 100 sq. ft.

STEEL PROTECTION—Even steel that has already begun to corrode can be protected by cleaning and then coating with Hydralt.



STEEL AND CONCRETE need protection from corrosive smoke and fumes. Brush or spray on a protective coating of Hydralt, as in this railroad station smoke slot.

INSULATION MATERIALS, exposed to weather, are protected by fibrated types of Hydralt coatings.

FLINTKOTE'S ALL 'ROUND PROTECTIVE COATING

How many places about your plant require protection against moisture, fumes, smoke and weather?

More of them than you expected, aren't there?

Well, there's *one* type of coating that will protect them *all.* Flintkote HYDRALT. It will pay you to remember that name... and remember what it means.

Hydralt is Flintkote's registered designation for asphalt in its most modern form... a stable, mineral-colloid emulsion.

What does this mean to you? Plenty. It means that *Hydralt* will not soften and flow under heat. It will not crack, craze or alligator under exposure. These are acknowledged advantages for Hydralt over cutback asphalts or hot asphalt coatings.

You can apply Hydralt *cold,* with brush or spray. Or even trowel it on. It's odorless and non-toxic. Easy, economical to use.

And *Hydralt* is *durable.* Extensive tests show that it will far outlast any other form of bituminous coating exposed to weather.

A new folder gives full details about Flintkote's *Hydralt* Protective Coatings. Mail the coupon today for your free copy.

*Reg. U. S. Pat. Off.

THE FLINTKOTE COMPANY, *Industrial Products Division*
30 Rockefeller Plaza, New York 20, N. Y.

Please send me your folder on Hydralt Protective Coatings.

Name.....

Address.....*City*.....*State*.....

TW 1246

Flintkote-Products for Industry

THE FLINTKOTE COMPANY · **INDUSTRIAL PRODUCTS DIVISION**
Atlanta · Boston · Chicago Heights · Detroit · Houston

FLINTKOTE INDUSTRIAL PRODUCTS

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.
Los Angeles · New Orleans · Washington · Toronto · Montreal

AIR DIFFUSERS *by* BARBER-COLMAN

WRITE FOR THIS BOOK

Send today for a copy of the Barber-Colman book on UNI-FLO and VENTURI-FLO Air Distribution Outlets. Learn how these well-made, well-designed units can help you solve any air distribution problem. Ask for Bulletin F-1415-7.

Another dependable Barber-Colman product that will help to improve efficiency and economy in textile mill operation, VENTURI-FLO Air Distribution Outlets are scientifically designed for best results. They provide uniform distribution of air, with proper mixing of fresh and room air *at the outlet* by means of a carefully engineered application of the "venturi" principle. They can be used in heating, cooling, humidifying, or ventilating systems, or any combination of such services. Performance data is so complete that sizes and locations can be specified to accomplish desired results with great accuracy. The units are compact, neat in appearance, easy to install, and easy to clean. Various types are available to suit different requirements. *For full information, consult your Barber-Colman representative.*

FOR BETTER AIR DISTRIBUTION — LOOK TO BARBER-COLMAN

Barber-Colman Company

45 YEARS EXPERIENCE SERVING TEXTILE MILLS

ROCKFORD ILLINOIS BOSTON MASSACHUSETTS GREENVILLE SOUTH CAROLINA GREENSBORO NORTH CAROLINA ATLANTA GEORGIA

The Water Conditioner

THAT CONDITIONS WOOL, TOO!

QUADRAFOS* in the scour produces brighter, loftier wool of superior handle and odor.

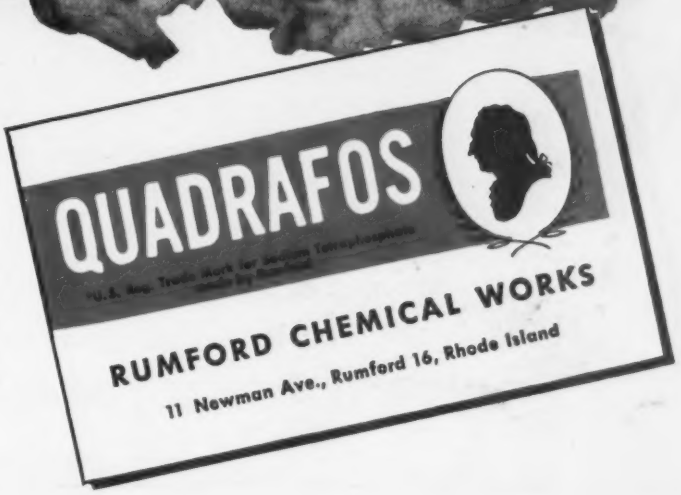
Wherever soap is used in textile processing, as well as in dyeing, sizing and printing, QUADRAFOS offers advantages that match its wool-scouring power.

Mill men will tell you that QUADRAFOS is in a class by itself when it comes to scouring Cape, Texas and lime-pulled wools. The difference can be seen, felt and smelled. QUADRAFOS-treated wool looks as if it were bleached . . . feels more open, softer and loftier . . . has little or no odor as compared with soap-and-alkali-scoured wool.

Left—unscoured wool; *Middle*—regular soap and alkali scour; *Right*—QUADRAFOS, soap and alkali scour. The addition of 10% QUADRAFOS calculated on the original soap charge makes possible 25% reduction in soap with improved results.

WRITE FOR COMPLETE DATA

Interesting facts about the non-precipitating water-softening, deflocculating, emulsifying, detergent properties of QUADRAFOS . . . and how they improve textile processing and dyeing, are yours for the asking. Write today to the Rumford Technical Service Department.



"BOUND TO GET THERE"

Boxed, Bundled or Baled!

...WITH Acme Steelstrap

REG. U. S. PAT. OFF.

No matter how your textile product goes, it will move more secure against everyday shipping hazards when banded with Acme Steelstrap.

You save, too, on warehousing space, shipping weight, dunnage, freight claims . . . and profits rise proportionately.

So, whether your textile shipments are single units, carloads of freight, or ships' cargoes . . . use Acme Steelstrap for boxing, bundling, or baling. It means the most efficient shipping pack.

NEW YORK 7 ATLANTA CHICAGO 8 LOS ANGELES 11

ACME STEEL COMPANY

ACME STEEL CO.
CHICAGO

A MESSAGE TO PLANT EXECUTIVES

who want the recognized benefits of *Electronic* AIR CLEANING

Only a few short months ago the RAYTHEON Precipitator was announced as *ready for delivery*.

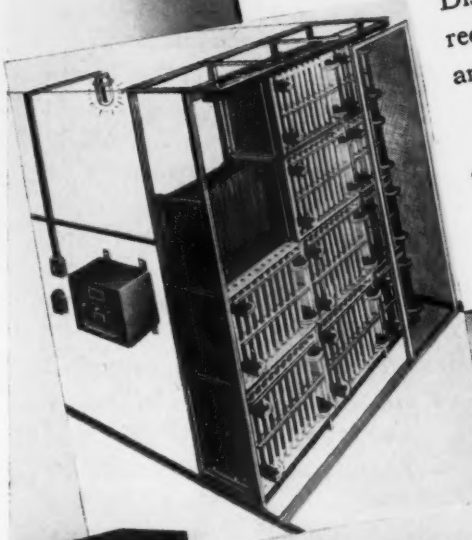
Designed to remove airborne dust, dirt, pollens, oil mist, bacteria and other particles as fine as 1/250,000th of an inch, this equipment was engineered and put into production by Raytheon engineers of long experience in every phase of electronic engineering and precision manufacturing.

Orders received to date cover a broad range of residential, commercial and industrial applications in capacities up to 440,000 c.f.m.

Therefore, to plant executives who are faced *right now* with problems arising from airborne dust and dirt, we make this suggestion:

Contact the nearest Raytheon Sales Office listed below. Discuss your problem with our District Manager. Have him determine your requirements and submit detailed estimates and delivery information.

Only by such action on your part can we assure *early delivery* of RAYTHEON Precipitator equipment.



TWO TYPES OF RAYTHEON PRECIPITATOR
Meet all Industrial and Commercial Requirements

Cell-Unit Type for Large Areas is delivered complete with power pack and accessories — ready for installation in new or existing ventilating or air conditioning systems. Can be built up to provide any required capacity.

Package Units for Smaller Areas are completely self-contained, ready to put right to work. Can be furnished with special base for recovery of oil mist and readily adapted for use with any type hood. Capacity 1200 to 1500 c.f.m.

RAYTHEON

Excellence in Electronics

RAYTHEON MANUFACTURING COMPANY

Industrial Electronics Division, Waltham 54, Massachusetts

Builders of Raytherm Dielectric Heaters for every textile yarn and fabric application and other Electronic Products for Industry

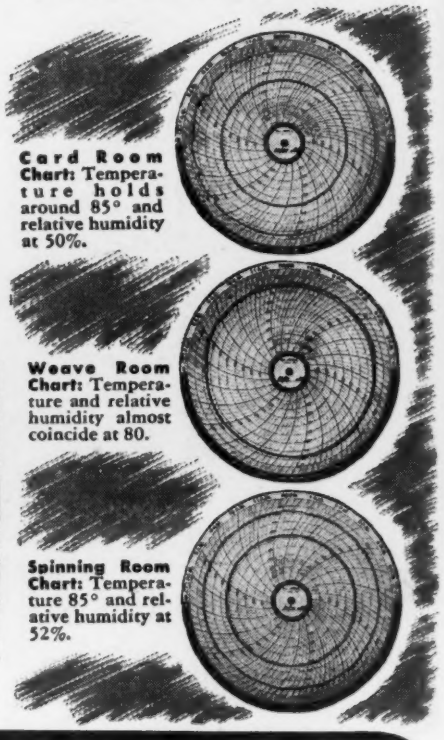
Sales Offices: Atlanta • Boston • Chicago • Cleveland • Louisville • New York

Here's Amco Humidification and Cooling

AT ITS SIMPLE AND EFFICIENT BEST!

Modern, insulative glass bricks pave the way to interior heat and moisture control. AMCO fan-powered air intakes alternate with automatically controlled vents.

AMCO fan units for controlling air intake are easily installed without sacrifice of interior machine set-up. Atomizers are self-cleaning, cutting maintenance costs to the bone.



Card Room Chart: Temperature holds around 85° and relative humidity at 50%.

Weave Room Chart: Temperature and relative humidity almost coincide at 80.

Spinning Room Chart: Temperature 85° and relative humidity at 52%.

KNOWING that the reduction of excessive temperature and the holding of humidity at correct levels are essential to efficient production and worker health and comfort, Marion Manufacturing Company took action – had an AMCO Evaporative Cooling System installed – and got accountable results. The three charts from separate plant departments provide a graphic record of the ideal conditions maintained by the AMCO system.

No rambling duct lines are necessary with AMCO. Relative humidity is precisely maintained by introducing atomized water spray, and the frictional heat of high speed machines is absorbed by evaporation of the moisture in conjunction with carefully controlled air-flow.

An AMCO engineer will be glad to show you how, with this system, you can modernize your plant simply and economically to get greater speed and output that pays profits in these competitive times.

FEATURES OF AMCO HUMIDIFICATION AND COOLING

- Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.
- Speeds production in high friction (heat) areas.
- Assures evener yarn counts and increases breaking strength.
- Gradually increases regain for good roving and consequent better spinning.
- Drafting of fibres smoother and more compact.
- Waste and fly greatly reduced.
- No cumbersome ducts to require cleaning and obstruct light.
- Easier to install – minimum disruption.
- High flexibility to meet changing room conditions.
- Minimum maintenance.
- Amco Evaporative Cooling utilizes your present humidification system.
- Increases worker comfort.

AMCO

HUMIDIFICATION and COOLING

AMERICAN MOISTENING CO. AFFILIATED WITH GRINNELL COMPANY, INC., PROVIDENCE, R. I. • BOSTON • ATLANTA • CHARLOTTE

NO CHECKMATE

When your move is to **Stein-Hall**

This is a problem in good chess. It is also a problem in good business. On the board, the white king is checked, but not **check-mated.** He can move out of danger.

In business, too, there are constant checks by shortages which must be licked by substitution or new production techniques. Helping our customers move out of these checks is our job.

Stein Hall technicians and field representatives know the problems of your business. They are plant wise and production wise. They have back of them Stein Hall's long experience and unsurpassed research facilities.

Be sure to see a Stein-Hall Representative at the Silver Jubilee Convention AATCC

80 YEARS OF SERVICE TO THE TEXTILE INDUSTRY

STEIN HALL

285 MADISON AVENUE — **NEW YORK 17, N. Y.**

1011 Johnston Bldg., Charlotte 2, North Carolina
210 Grosvenor Bldg., Providence 1, Rhode Island
250 Van Horn Street, Toronto, Canada

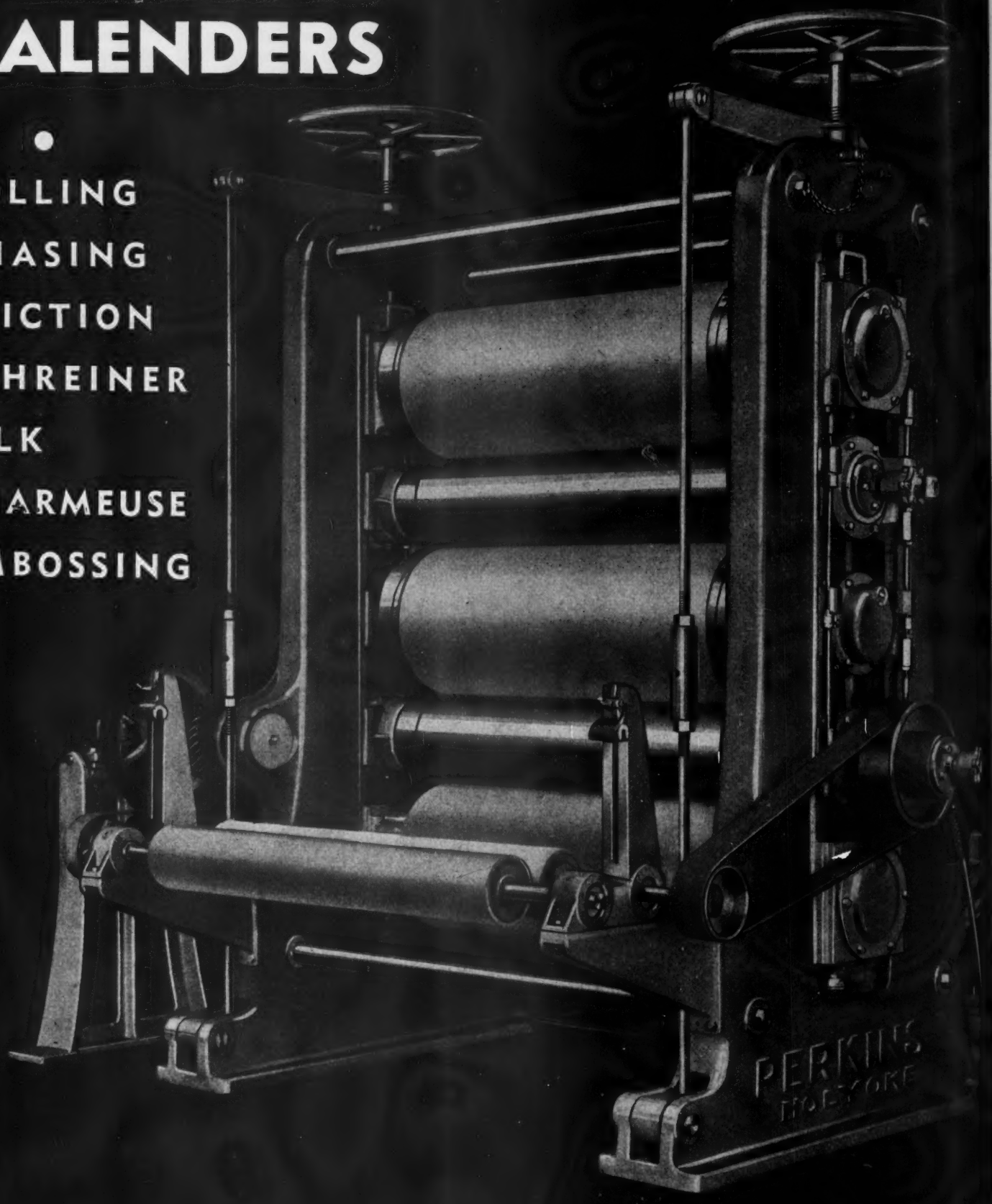
EST. 1866

Offices in Other Principal United States Cities
Laboratories at New York, Charlotte, Providence, Chicago

A TEXTILE STARCH FOR EVERY TEXTILE PURPOSE

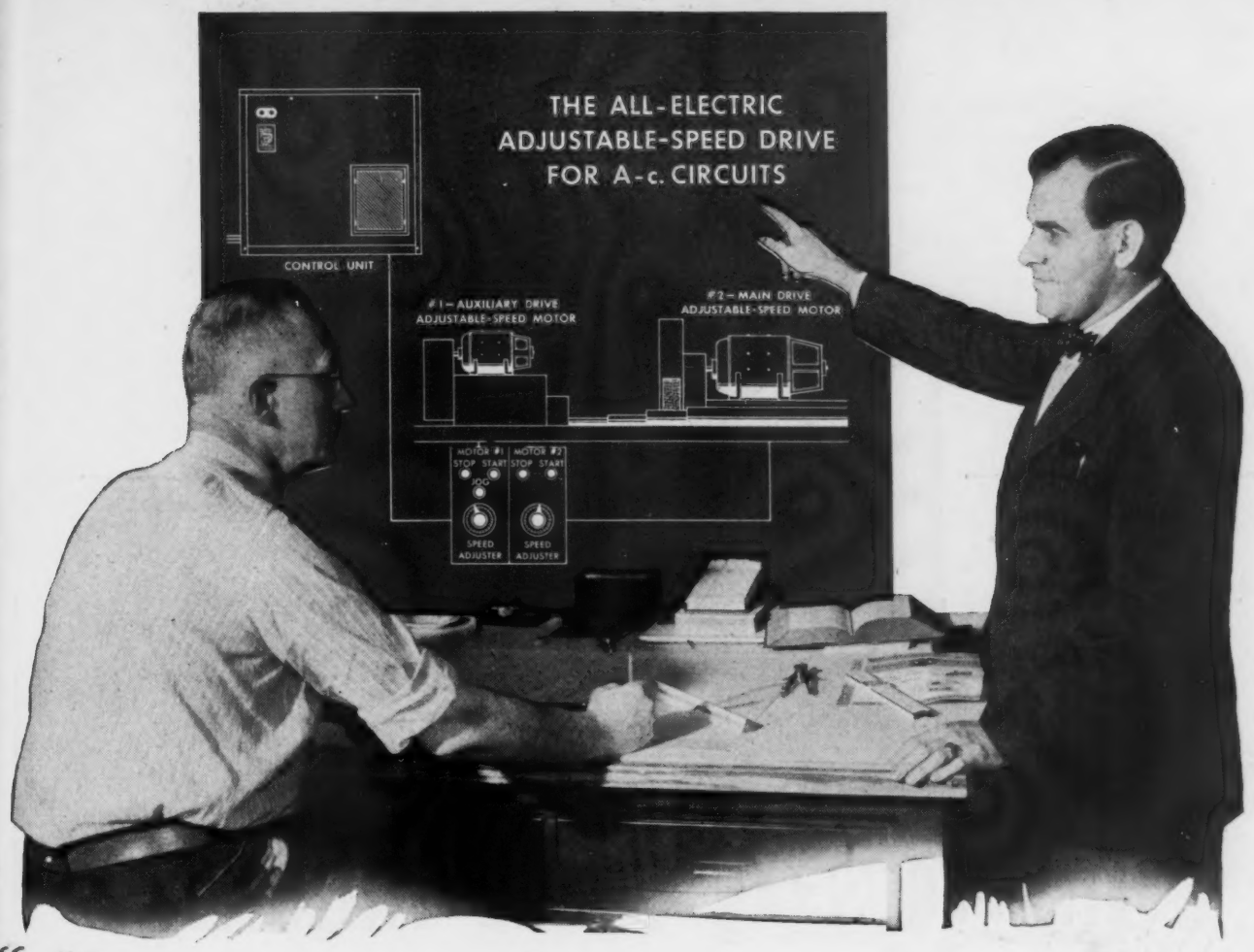
PERKINS CALENDERS

- ROLLING
- CHASING
- FRICTION
- SCHREINER
- SILK
- CHARMEUSE
- EMBOSSING



B. F. PERKINS & SON, Inc.

HOLYOKE • MASS.



"Here's your Answer TO UNLIMITED SPEED SELECTION!"

RELIANCE V★S DRIVE

Conveniently-packaged, space-saving V★S Drives are available from 1 to 200 horsepower.

Reliance V★S is the *All-electric, Adjustable-speed Drive,* which operates from *A-c. Circuits.* The flexibility it brings to machine operations can increase your production and cut your costs—as it has already done in thousands of installations. Here is the simplest, most efficient means of securing an infinite range of stepless speed changes from your plant's A-c. circuit for all processing jobs. Bulletin 311 will bring you more of the important facts about the V★S Drive. Write for it today!

RELIANCE ELECTRIC & ENGINEERING CO.

1086 Ivanhoe Road • Cleveland 10, Ohio

Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary • Grand Rapids • Greenville Houston • Kansas City • Knoxville • Los Angeles • Milwaukee • Minneapolis • New Orleans • New York • Pittsburgh Portland, Ore. • Rockford • St. Louis • San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D. C. Sao Paulo, Brazil

RELIANCE A-C D-C MOTORS

"Motor-Drive is More Than Power"

Fig. 769
Pat. Applied for

HALLOWELL STEEL TRUCKS

Sturdy . . . built of steel . . . for miles of continuous, hard use . . . "Hallowell" Steel Trucks with strong welded joints, and casters which move easily—regardless—are being recognized and appreciated more and more.

Rough loads will not splinter or damage the smooth, hard steel platforms. Welded construction insures against open joints and, needless delays caused by breakdowns. Maintenance costs cut to a minimum. There is a "Hallowell" Truck to meet every need.

Here are a few available styles:

Fig. 753
4-Wooden Stakes

Fig. 760
1-Bar Handle

Fig. 772
1 Rack

Fig. 751
4-Pipe Stakes

For more information and styles, write for the "Hallowell" Catalog.

"Unbrako" and "Hallowell" products are sold entirely through distributors.

OVER 43 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 571 • BRANCHES: BOSTON • CHICAGO • DETROIT • INDIANAPOLIS • ST. LOUIS • SAN FRANCISCO

Color

NOW AS EVER . . . THE MASTER SALESMAN

APPEALING to the emotions, color is more persuasive than a thousand words. All races, all ages respond to it. In the case of textile "convenience items", such as suspenders, garters and belts, particularly, it is almost always the deciding factor in a sale.

With an experience of 36 years in yarn dyeing, Franklin Process can help you to select your colors wisely, from a manufacturing as well as a merchandising standpoint. Service in other respects is also outstanding, for we can deliver from four separate plants, if necessary, with a capacity of over 800,000 lbs. a week.

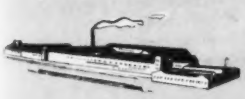
In any case color quality will be uniform for all plants use identical formulas for standard shades and the same type of dyeing equipment.

Franklin Process

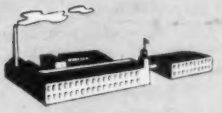
LARGEST PACKAGE DYERS IN THE WORLD

New York Representative, 40 Worth St.

PROVIDENCE

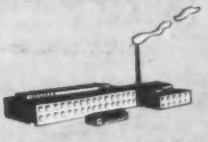


PHILADELPHIA



GREENVILLE

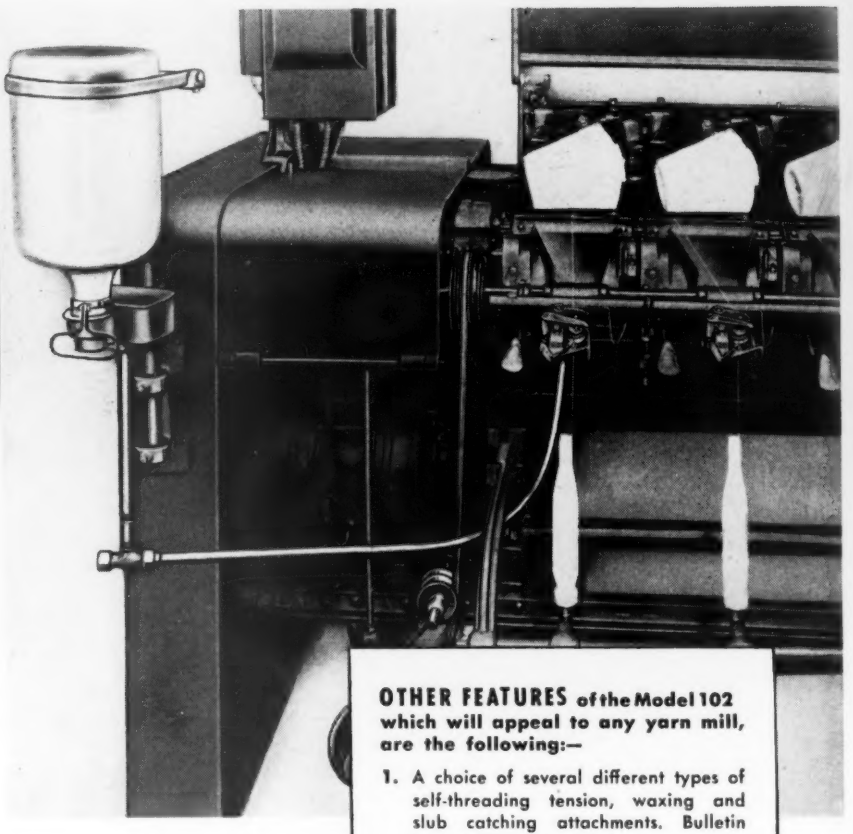
CHATTANOOGA



Soft twist worsted knitting yarns may be wound . . .

WITHOUT ADDING TENSION

ON FOSTER MODEL 102



Even when all tension weights are removed on the Foster Model 102, the yarn will not jump out of the guide and a good package is still possible, if the proper angle of wind and correct amount of pressure are used.

Partly because of these features, the Model 102 is ideal for winding soft twist knitting yarns which break easily under tension. Another feature which contributes to the same end, is that the supply bobbin is in exact alignment at all times with the tension bracket and near enough to get a SINGLE BALLOON, reducing strain on the yarn.

High speeds are also possible when winding soft twist yarns on Model 102. One mill we know of is running 70's worsted yarn at 400 y.p.m.

OTHER FEATURES of the Model 102 which will appeal to any yarn mill, are the following:—

1. A choice of several different types of self-threading tension, waxing and slub catching attachments. Bulletin No. A-88 on request.
2. Winds any kind or count of staple yarn.
3. Winds from dyed packages, even when the latter are damp in the center. Yarn will not jump out of the traverse guide.
4. Machine may be equipped with emulsion attachment.
5. Winds 9 different angles for different types and counts of yarn.
6. Winds 6" or 7" traverse cones.
7. Easily converted to wind tubes or warper cones.

FOSTER MACHINE CO. WESTFIELD, MASSACHUSETTS, U.S.A.

Southern Office: Johnston Building, Charlotte, North Carolina • *Canadian Representative:* Ross, Whitehead & Company, Limited, University Tower Building, 660 Ste. Catherine Street West, Montreal, Quebec.

Two ways to measure quality in Fluorescent Lamps

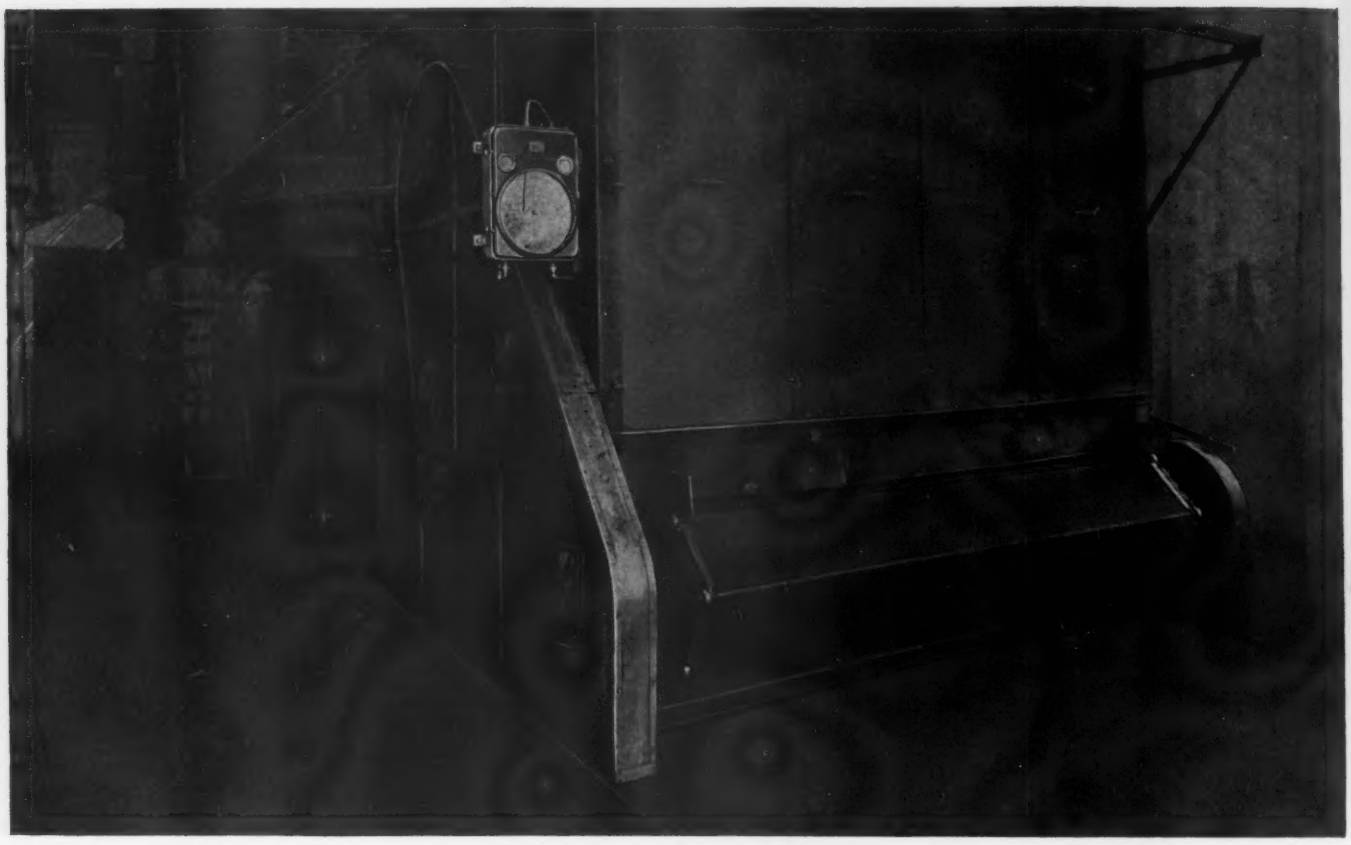
1 **One way,** General Electric found, was to build the world's biggest double quartz monochrometer. With this special spectroscope, G-E lamp scientists are able to make thousands of quick and accurate measurements of light waves and of the short ultra-violet radiation that is so important in producing fluorescent light. Those measurements are vital both in fundamental lamp research and in assuring buyers of G-E fluorescent lamps of accurately standardized colors. You'd have fun operating General Electric's monochrometer—but you'd hardly have room for it in your budget or your cellar. Nor would you be inclined to duplicate all of General Electric's other research and testing facilities. But there *is* a measure of fluorescent lamp quality that's always in reach . . . .

2 **Insist on the GE monogram** on all the fluorescent lamps you buy for your business and home. It's easy to understand why General Electric has been first with practically all the major improvements in fluorescent lamps when you realize that G-E Lamp scientists never rest on past achievements. *General Electric lamp research is constantly at work to make General Electric lamps ever better and to make them Stay Brighter Longer.

G-E LAMPS

GENERAL ELECTRIC

BETTER DRYING . . .



. . . *paid for by the steam saved!*

Better control of moisture content and strength of the goods are the principal reasons for using automatic temperature control . . . but when the controllers pay for themselves quickly out of the steam saved . . . such control is almost a necessity.

At a Pennsylvania woolen goods mill, a Bristol Free-Vane Temperature Controller on a wool dryer not only improved quality but also reduced costs. The saving in steam paid for the instrument in two weeks!

Another mill reports: "The improvement in quality is so great, we would continue to use The Bristol Controller, even if steam costs had been increased instead of decreased."

Write today for free Bulletin T 800 on Temperature Controllers, addressing The Bristol Company, 157 Bristol Road, Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont. Bristol's Instrument Co. Ltd., London, N. W. 10, England).

Other Bristol Automatic Controllers and Recorders for Textile Purposes

1. Recording Temperature Controllers for Bleach Kiers.
2. Continuous pH Controllers and Recorders.
3. Humidity Recorders for Carding, Combing, Drawing, Spinning, and Weaving.
4. Automatic Temperature Controllers for Mercerizers.
5. Power Plant Instruments.
6. Tachometers for Yardage through Tentering Dryer.
7. Automatic Control for Dye Jigs, Dye Machines and Dye Kettles.
8. Flow Meters for Measuring Steam to each Department.
9. Automatic Control for Washing and Bleaching Equipment.
10. Slasher Control Systems.

Engineers process control for better products and profits

AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS

YOU can be one of the forward-looking mills to capture new markets and step up sales volume with *Velon*.

***Velon* makes smarter, brighter colors practical.** Because the fibre is non-porous, soil and grime can't cling. *Velon* fabrics wipe clean as new with a damp cloth—and the color can't fade, run or wash out because it is inherent in the structure of the filament.

***Velon* defies abrasion, scuffing, snagging.** Each homogeneous fibre is a single thread of giant strength, amazingly resistant to wear.

***Velon* is versatile.** Not only adaptable to your manufacturing methods without major changes, it actually saves production steps. Firestone engineers will be glad to consult with yours now that *Velon* is available. Investigate its possibilities for home, outdoor, commercial and transportation upholstery, for handbags, shoes, belts, wall-trim, draperies, awnings, luggage, lampshades.

FREE—Write Firestone, Akron, for your copy of the full-color *Velon* booklet and samples of yarn.

*TRADE MARK

BEST TODAY··· STILL BETTER TOMORROW

LISTEN TO THE VOICE OF FIRESTONE MONDAY EVENINGS OVER NBC

BUILDINGS AND BUILDING MANAGEMENT

Substitute Management

In talking with building managers about their problems and policies, we occasionally encounter managers who seem to take pride in knowing very little about the physical operation of their properties. The inference, presumably, is that they are personally too important to know much about such things as maintenance, rehabilitation and repairs.

Were this attitude less common, it might be laughed off as an amusing pose intended to impress visitors, but it is too widespread to be dismissed so lightly, and it seems to be spreading. Perhaps this is perfectly natural. It is hard to get very excited about efficient operation and tenant service when buildings are full, and resentful tenants have nowhere to go. It is much easier to sit back and let someone else operate the building, and that's exactly what many building managers seem to be doing.

They have forgotten, apparently, that efficient operation is the chief difference between building management and real estate brokerage. Any broker could rent space and collect rents in today's market, but most brokers would have difficulty in operating buildings successfully. That's why owners hire professional building managers. Otherwise, a real estate broker would do just as well, and be less expensive.

Actually, of course, a sound personal knowledge of building operation is one of the building manager's best tools in making buildings profitable. No one expects a building manager to know how to repair an elevator or build a wall or even mop a floor. That's not his job, but he almost certainly won't go far in his profession *unless he knows whether or not such work is being done properly, and whether or not his costs are in line with comparable costs in other buildings.* That is his job, and no one can do it for him.

Any building manager is, of course, thoroughly justified in delegating routine operating authority to competent subordinates — to the building superintendent, the chief engineer and others whose technical knowledge qualifies them to be department heads. But the manager who then sits back and lets these subordinates make operating policy decisions for him is flirting with serious trouble for himself, his owners and the properties under his supervision.

There is no satisfactory substitute for the building manager's brains, or for his ability to make sound operating decisions on the basis of his own knowledge. That's why he is the manager. To forget that is to invite someone else to operate his buildings in his place.

Charles McCaleb

Reproduced by permission from the September issue of Buildings and Building Management

OUR SENTIMENTS EXACTLY.. *Mr. McCaleb!*

Elevator Maintenance by the Manufacturer . . .
What better assurance of proper workmanship?

Standard rates now in effect on 30,000 elevators
What better assurance that costs are in line?

Maintenance by Otis, for Otis elevators, is available at a flat monthly rate through your local Otis Elevator Company office.

Otis
ELEVATOR COMPANY
OFFICES IN ALL PRINCIPAL CITIES

Used for spinning yarn in a modern rayon plant, these stainless steel cylinders represent but one of many applications for long-lasting ENDURO. Others include dyeing and bleaching equipment, agitators, dry cans, fulling machines, reels and sizing equipment.

Enduro Pays

in many ways

- Improved Employee Relations
- Easy to Clean
- Assures "True" Colors
- Non-Contaminating
- Strong—Long Lasting
- Resistant to Rust and Corrosion
- Easy to Fabricate
- Universal Acceptance
- Low Ultimate Cost

Universal accepance is an old story with Republic ENDURO Stainless Steel in all branches of the textile industry.

Right from the start, textile men welcomed the remarkable ease of cleaning which characterized dyeing equipment made of smooth, lustrous ENDURO. They were quick to recognize the inherent advantages of a material which assured "true" colors . . . eliminated danger of contamination in switching from dark to light colors.

Now, after many years of service in large and small plants, countless installation records conclusively prove the complete dependability, economical maintenance and long, trouble-free life of equipment made of Republic ENDURO Stainless Steel.

For complete information, write to:

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York, 17, N. Y.

FREE . . .

Republic's colorful new 16-page booklet which presents a comprehensive picture of the many applications for lustrous ENDURO Stainless Steel throughout the textile industry. To get your copy, write to Department TW for booklet No. 444.

Republic
ENDURO STAINLESS STEEL
Reg. U. S. Pat. Off.

Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Strip, Plates, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

WASHER AND DYE PADDER at The Textileather Corp., Toledo, O., utilizes 91 corrosion resistant Inconel covered rolls. Designed by H. L. Perry, plant engineer, for handling automobile upholstery fabric. Capacity 3320 yards per hour. *Fred Christen & Sons Co.*, Toledo, built this equipment in 1940. Inconel covered rolls were fabricated by *The Youngstown Welding & Engineering Co.*, Youngstown, O.

WHEN you need a metal that will stand up in all dyeing processes, investigate Inconel*.

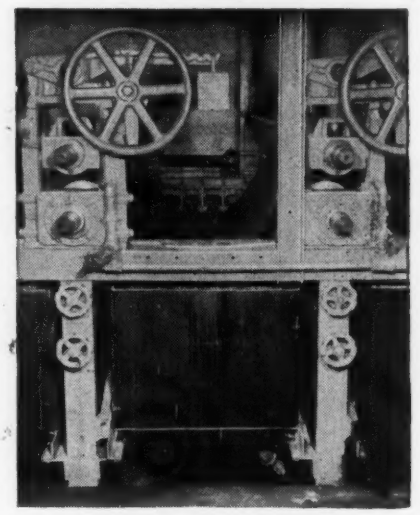
Its 80% nickel content assures resistance to strong alkalies, chlorides and reducing acids; its 14% chromium content prevents harmful attack by many oxidizing acids.

Inconel stands up against all types of dyes . . . acid and acid chrome . . . direct, vat, sulfur and developed colors. It resists corrosion by dilute hypochlorites and by sizing or other compounds and solutions used to impregnate fabrics. Peroxide bleaches have little effect on Inconel, and the alloy itself — unlike many other metals — does not harmfully accelerate decomposition of the bleach.

Having greater strength and toughness than structural steel, and possessing excellent fabricating and welding properties, Inconel makes possible the construction of extremely rugged, long-lived equipment.

Inconel is available in standard mill forms . . . in sheet and strip . . . in rod, bar, plate and tubing. Let's not forget castings, either. They're available, too. And for equipment requiring plate thicknesses of 3/16" and heavier, you can get Inconel-clad steel . . . at a substantially lower price than solid Inconel.

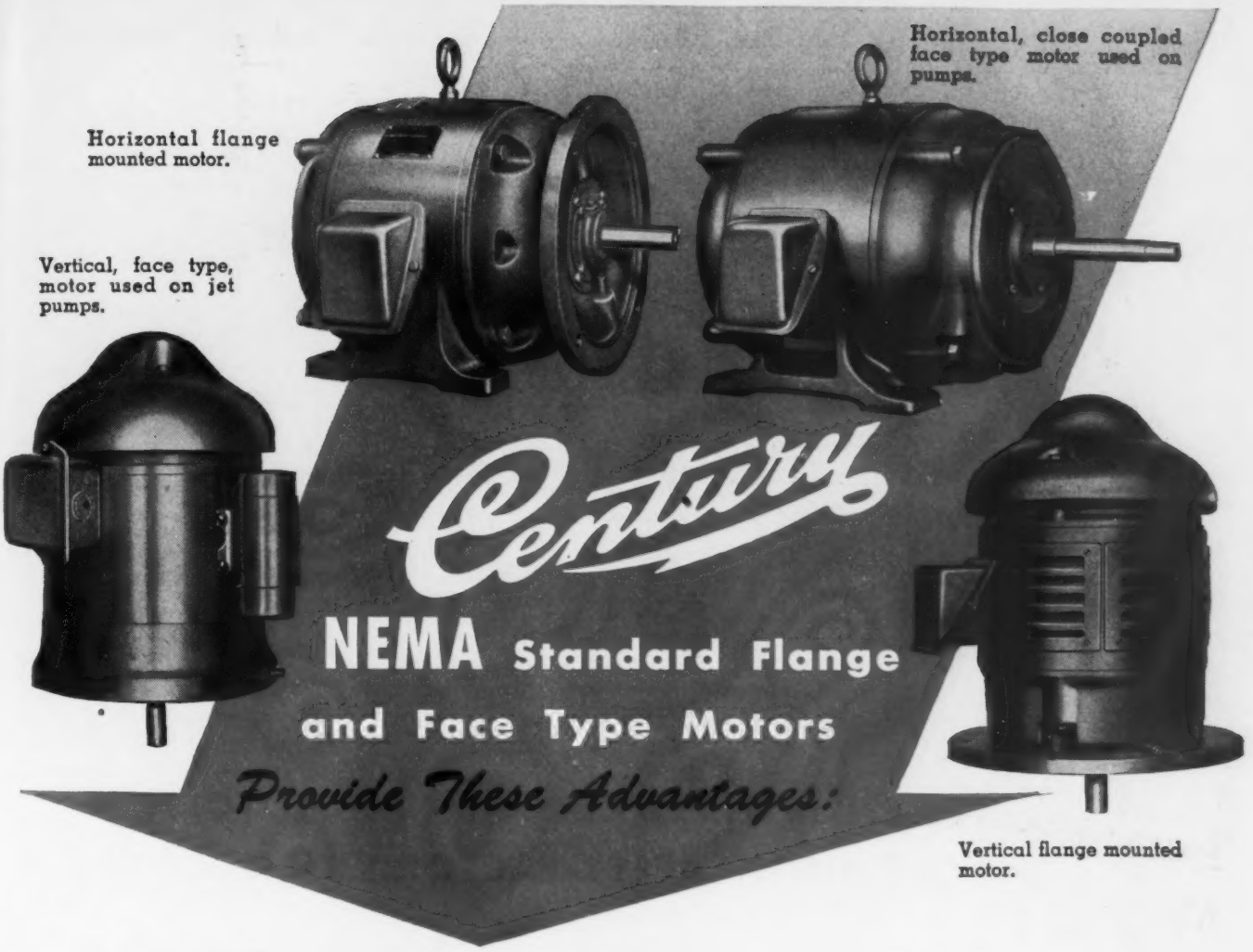
Detailed information on corrosion resistance, mechanical and working properties, and typical uses of this versatile nickel alloy is contained in Technical Bulletin T-7, *Engineering Properties of Inconel*. A copy is yours for the asking. Drop us a line on your letterhead, and we'll see that it's sent promptly. *Reg. U. S. Pat. Off.



CLOSE-UP OF ONE SECTION of the eight-box washer. Welded tank is made of ¼" Inconel-clad steel plate, and contains 7 idler rolls of seamless Inconel tubing, 4" OD x .120 wall x 74⅛" face.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK 5, N. Y.

INCONEL
80 NICKEL — 14 CHROMIUM


Horizontal, close coupled face type motor used on pumps.
Horizontal flange mounted motor.
Vertical, face type, motor used on jet pumps.
Century
NEMA Standard Flange
and Face Type Motors
Provide These Advantages:
Vertical flange mounted motor.

- **Interchangeability**
- **Simplified Service Problems**
- **Comparatively Better Shipments**

Many designers are taking advantage of the benefits of motor standardization, especially motors for flange and face type motor mountings.

Century motors with standard face type brackets are used where the motor is fastened from the driven machine side and the flange type bracket is used where the motor is fastened to the machine from the motor side.

Flange and face type Century motors are supplied in single phase, three phase and direct current types, for vertical or horizontal mounting.

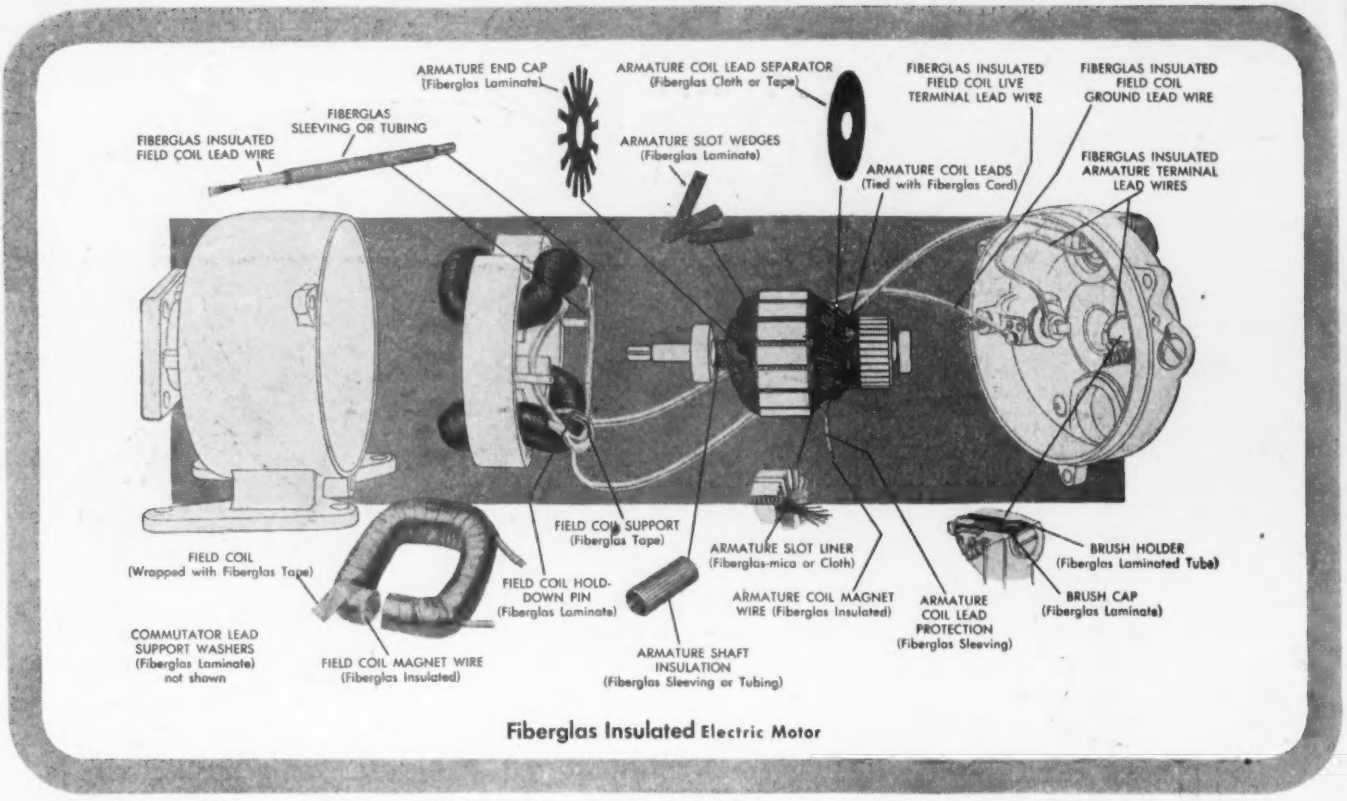
Other Century motors are made in a wide range of types and sizes from 1/20 to 600 horsepower. To assure top performance Century motors are engineered to the functional characteristics of the machines they drive. Select Century motors for all your electrically powered equipment.

Century C MOTORS

463

CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities


ARMATURE END CAP (Fiberglas Laminate)
ARMATURE COIL LEAD SEPARATOR (Fiberglas Cloth or Tape)
FIBERGLAS INSULATED FIELD COIL LIVE TERMINAL LEAD WIRE
FIBERGLAS INSULATED FIELD COIL GROUND LEAD WIRE
FIBERGLAS SLEEVING OR TUBING
FIBERGLAS INSULATED FIELD COIL LEAD WIRE
ARMATURE SLOT WEDGES (Fiberglas Laminate)
ARMATURE COIL LEADS (Tied with Fiberglas Cord)
FIBERGLAS INSULATED ARMATURE TERMINAL LEAD WIRES
FIELD COIL SUPPORT (Fiberglas Tape)
ARMATURE SLOT LINER (Fiberglas-mica or Cloth)
BRUSH HOLDER (Fiberglas Laminated Tube)
FIELD COIL (Wrapped with Fiberglas Tape)
FIELD COIL HOLD-DOWN PIN (Fiberglas Laminate)
ARMATURE COIL MAGNET WIRE (Fiberglas Insulated)
ARMATURE COIL LEAD PROTECTION (Fiberglas Sleeving)
BRUSH CAP (Fiberglas Laminate)
COMMUTATOR LEAD SUPPORT WASHERS (Fiberglas Laminate) not shown
FIELD COIL MAGNET WIRE (Fiberglas Insulated)
ARMATURE SHAFT INSULATION (Fiberglas Sleeving or Tubing)

Fiberglas Insulated Electric Motor

WHEN MOISTURE CUTS PRODUCTION, USE "HIGH-SAFETY-FACTOR" INSULATION

When high humidity attacks the efficiency of electrical equipment, *extra protection* is needed for motors, generators, and transformers. In many textile industry processes, Fiberglas "High-Safety-Factor" Insulation Materials, resistant to moisture, are helping reduce costs caused by "burn-outs" and rewind delays in both new equipment and maintenance work.

These insulating materials are made from fibers of glass that are unaffected by moisture, oil and corrosive acids or vapors. They possess high heat resistance and great tensile strength, providing a strong, thin, flexible base for insulating impregnants.

The cost of the extra protection afforded by Fiberglas Insulation is slight—only a fraction of the cost of the original equipment. Invaluable savings in time and machinery more than offset the cost of Fiberglas.

Fiberglas Electrical Insulation Materials are sold nationally by leading distributors and are available in the form of laminates, mica combinations, insulated wire, treated or untreated tying cords, braided sleevings and cloths.

Ask your Fiberglas Distributor for the complete story on the use economies of Fiberglas. Add the "extra" protection of "High-Safety-Factor" Insulation to your electrical equipment.

Here is performance and application data about Fiberglas that may help solve your insulation problem. Write today for the new Fiberglas Electrical Insulation Materials catalog EL46-11. Owens-Corning Fiberglas Corporation, Dept. 864, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.

ASK FOR FIBERGLAS IN YOUR NEW MOTORS—AND ON YOUR NEXT REWINDS

OWENS-CORNING
FIBERGLAS
TM. REG. U.S. PAT. OFF.

OTHER FIBERGLAS PRODUCTS: Thermal Insulations • "Dust-Stop" Air-Filters • Fiberglas Yarns and Cloths • Fiberglas Mats

YARNS MAY BE SYNTHETIC . . BUT STATIC TROUBLES ARE REAL!

ELIMINATE ALL STATIC WITH THE CHAPMAN ELECTRIC NEUTRALIZER

Each new synthetic, each new method, each new machine—has a new set of problems—some easily solved, others not so simply. For years the problem of static in textile mill routine was costly, time-devouring, constantly troublesome. Humidity controls are not the complete answer for static. And excess humidity is expensive.

Today, the Chapman Electric Neutralizer, in thousands of plants and mills is doing away with all static troubles on which static — from any cause — may otherwise slow down production or prove a nuisance or an expense.

Chapman Electric Neutralizers are eliminating static on:

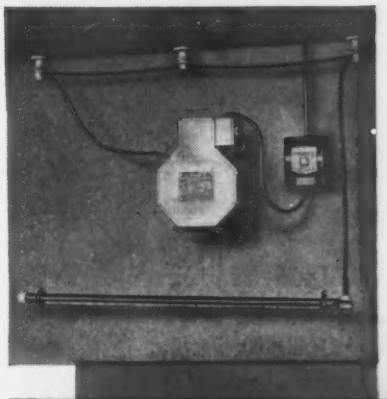
WOOLEN CARDS	**WORSTED CARDS**	**FOLDERS**
HIGH SPEED SLASHERS	**GARNETTS**	**NAPPERS**
HIGH SPEED WARPERS	**COTTON CARDS**	**DRYERS**

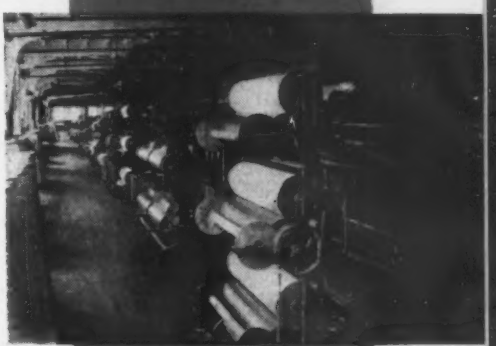
. . . and other machines, in many different operations, to speed production. And now, Chapman Neutralizers will expedite new peace-time output.

HOW IT WORKS — A Chapman Power Unit or transformer produces a corrective alternating charge at suitable tension, which is delivered through the Chapman Inductor Bar *to the material.* Whether the static charge is positive or negative, it is instantly neutralized, safely, by the corrective charge from the Inductor Bar.

STOP COSTLY DELAYS! SPEED PRODUCTION BY ENDING STATIC NUISANCE ONCE AND FOR ALL!

Call upon the Chapman Engineering Service! Write us! We will analyze your specific static problems.

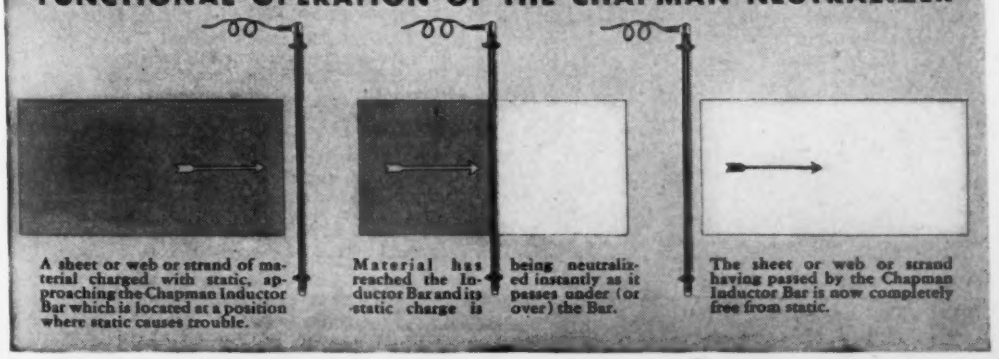




WOOLEN CARDS
— all equipped with Chapman Static Neutralizers.

WOOLEN ROVING
before and after static charges are eliminated.

FUNCTIONAL OPERATION OF THE CHAPMAN NEUTRALIZER



A sheet or web or strand of material charged with static, approaching the Chapman Inductor Bar which is located at a position where static causes trouble.

Material has reached the Inductor Bar and its static charge is being neutralized instantly as it passes under (or over) the Bar.

The sheet or web or strand having passed by the Chapman Inductor Bar is now completely free from static.

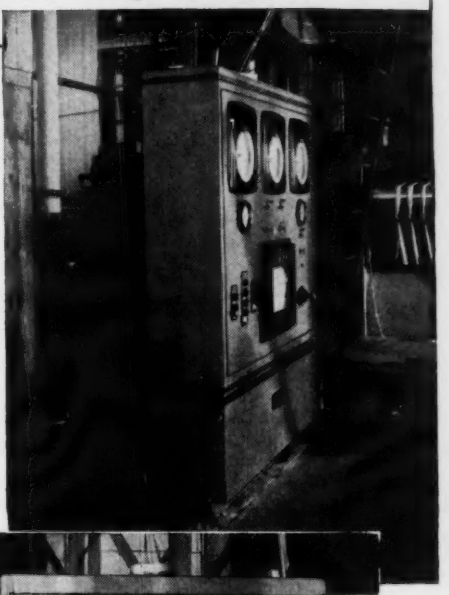
CHAPMAN ELECTRIC NEUTRALIZER COMPANY

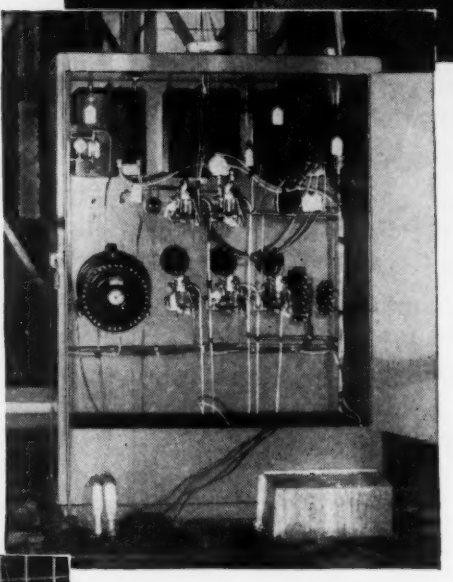
ESTABLISHED 1904

PORTLAND, 6, MAINE

Getting Maximum Results from Continuous Peroxide Bleach Systems

with Simpler Instrumentation

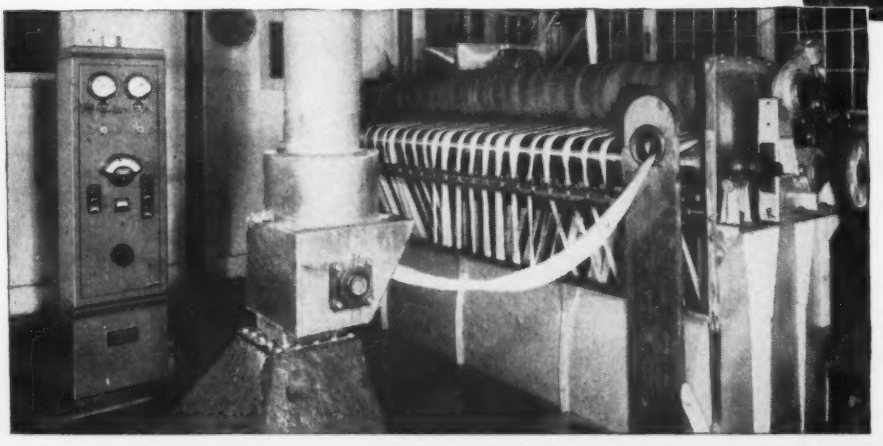




THIS Rodney-Hunt installation in a large New England print works is typical of the sixteen DuPont and Becco Continuous Peroxide Bleach Systems equipped with automatic Foxboro Instrumentation. It has completely lived up to expectations in every respect . . . speeding up production, cutting production costs and improving the quality of the product.

Foxboro Instrumentation has been a major factor in the development of these systems to their full capacities. It employs instruments precisely suited for each specific task and engineered with typical Foxboro thoroughness for simplicity and accuracy. Such instrumentation saves 50% on steam in addition to sizable amounts of caustic and peroxide. It also assures a more uniform chemical treatment.

If you are one of the many mill operators planning to install a Continuous Peroxide Bleach System, investigate the simplicity, economy and performance records of Foxboro Instrumentation. Discuss your project with a Foxboro engineer. Get detailed facts now from **The Foxboro Company, 84 Neponset Avenue, Foxboro, Mass., U. S. A.**



A. Instrument Cabinet for 1st section of a DuPont Continuous Peroxide Bleach System in a large New England plant. Foxboro Instruments used . . . 3-pen Temperature Controller; Liquid Level Controller; Pneumatic Loading Recorder and Indicators and a Recording Tachometer.

B. Back of Foxboro Instrument Cabinet for the 2nd section. It illustrates the outstanding advantages of Foxboro Control Cabinets – all connections except the few simple external ones are engineered by factory experts.

C. The Foxboro Cabinet for the 3rd section contains pneumatic loading indicators and a speed indicator. Cabinet Control is more convenient, looks better, and gives the instruments additional protection.

RECORDING · CONTROLLING · INDICATING

FOXBORO
REG U S PAT OFF
Instruments

"BUT WHAT'S YOUR LAST NAME?"

Our last name is *Koppers*. Many of you know our "children" by their "first names," but do you know their last name?

That is important to us, and it's important to you, too.

Many of you vouch for the extra service you get from Fast's Self-aligning Couplings or American Hammered Piston Rings, or White Tar insecticides or D-H-S-Bronze . . . and don't know that their last name is Koppers. If you know, you are probably disposed to put more than ordinary trust in other products made by Koppers.

Did you know that you can get a Koppers product for coating metal surfaces to prevent corrosion? A Koppers material that makes roofs last longer? Lumber that defies decay and termites? And many other products made with the same skill and originality and inventiveness as those?

So . . . look for this trade-mark which will soon be found on all Koppers products. Here it is.

K
KOPPERS

It is the mark of an organization which is engaged in many phases of engineering, construction, chemistry and coal carbonization . . . is in the forefront of new synthetic developments . . . is an important supplier to the pharmaceutical industry and to many other industries. For top value, look for this mark. Koppers Company, Inc., Koppers Building, Pittsburgh 19, Pennsylvania.

THE INDUSTRY THAT SERVES ALL INDUSTRY

For example . . .

for the manufacturing industries

Among the principal products Koppers provides for the manufacturing industries are:

Pressure-treated lumber which resists decay, termites, marine borers, fire and acid attacks.

Coal tar pitch waterproofing and dampproofing for foundations, retaining walls, etc.

Plastipitch Protected Metal for roofing, siding, gutters, downspouts, etc.

Pitchmastic Flooring Compound.

Tarmac road tar for roads, walks, parking areas, etc.

Bituminous-base paints and coatings.

Fast's Self-aligning Couplings.

Piston Rings for automobiles, diesels, steam engines, compressors, pumps.

Packing for locomotive cylinders and valves.

Pipe Dips.

HIGH STABILITY FOR CONTINUOUS LOW POWER CONSUMPTION

LILY-WHITE OIL

Sinclair LILY WHITE OIL, properly selected for the specific service, aids in reduction of power cost.

Correct lubrication assures minimum friction, long bolster life, and low power consumption in continuous operation.

LILY WHITE OILS are highly finished spindle oils. They possess stability characteristics to resist deterioration. Viscosity does not increase in use. Bolsters are free from deposits.

These oils are made from selected crudes. Tough film strength and high lubricity are built into the oil through special refinement.

LILY WHITE OILS are made in viscosities to suit all package loads and spindle speeds.

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

MOBILIFT

"Rates"

with the Men in the Warehouse

Ask the crew in any warehouse where Mobilift is in use. They'll tell you how much simpler, faster and smoother a Mobilift moves materials. They'll tell you, too, that Mobilift is safer and easier than the old "muscle methods" of the hand truck. And if you check with the superintendent, he'll tell you that Mobilift pays for itself many times over in lower handling costs. Join the thousands of plants that are cutting production costs with Mobilift.

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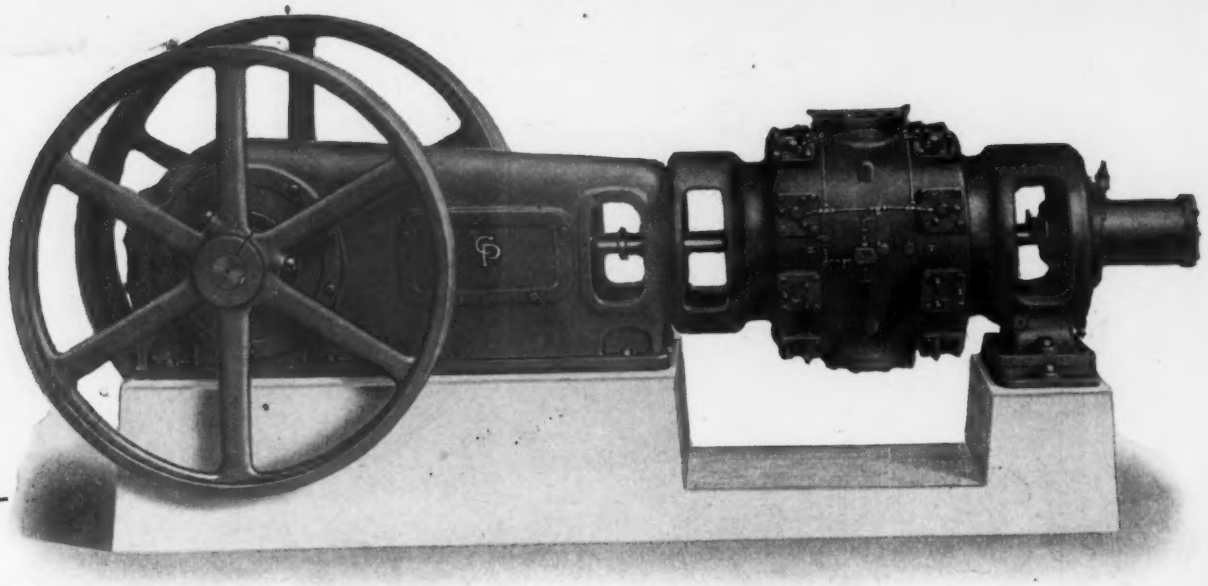
MOBILIFT *Moves Materials like a Giant!*

VAUGHAN MOTOR COMPANY ★ 835 S. E. Main Street, Portland 14, Oregon



This
COMPRESSOR

. . . delivers oil-free air

For uses where compressed air or gas must be free from oil, CP Oil-less Cylinder Compressors are ideal, since they require no oil, grease, or other cylinder lubricant.

Piston and rod, completely supported by crossheads, are full floating, removing all weight from cylinder walls and stuffing boxes. Thus long life of carbon piston rings is assured. Normal maintenance only is required — no need for periodic rotation of piston rings.

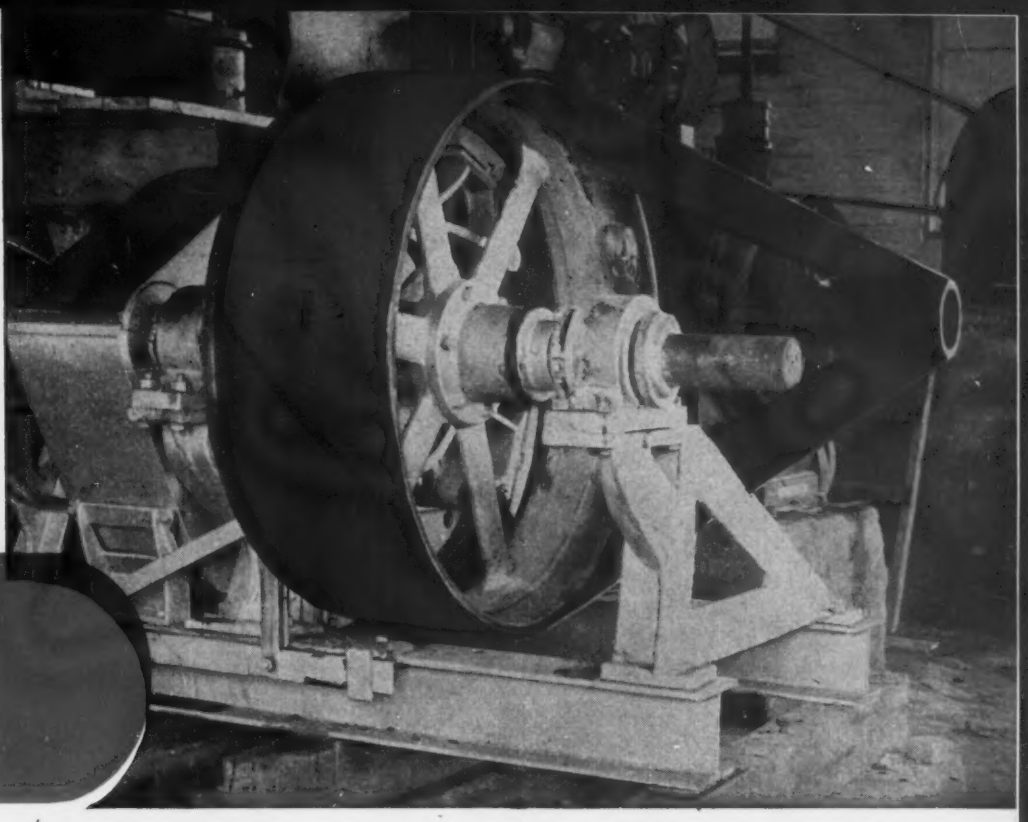
CP Oil-less Cylinder Compressors, arranged for belt, motor, or steam drive, are made in single and two-stage types, available in a wide range of sizes and ratings. Write for full information.

CHICAGO PNEUMATIC TOOL COMPANY

General Offices: 6 East 44th Street, New York 17, N. Y.

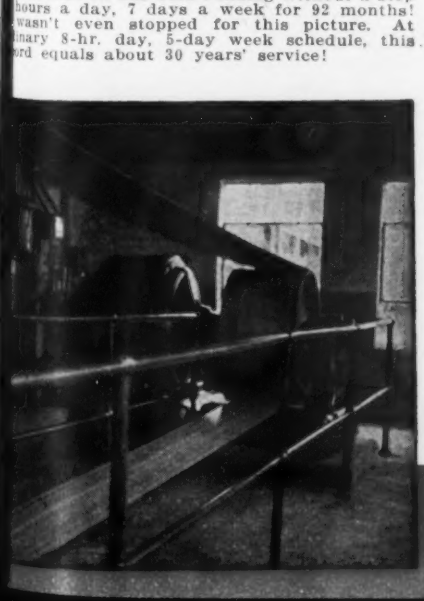
PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

EXTENSIBLE-TIP rounding main pulley on a pug mill drive. Note series of welded Flexlastics rivets and Patent number above, molded on all Manhattan Endless Belts with Extensible-Tip for your purchasing protection.



You get a SELECTION of 4 "STRENGTH MEMBER" DEVELOPMENTS in MANHATTAN ENDLESS BELTS

WHIPCORD ENDLESS BELT—cross section showing how Flexlastics are forced into cord Strength Member, affording complete protection against atmospheric conditions.



CONDOR-WELDED 18", 8-ply Compensated Belt driving a large mine fan. One of the early field spliced endless transmission belts, this Manhattan installation has been running without a stop 24 hours a day, 7 days a week for 92 months! It wasn't even stopped for this picture. At ordinary 8-hr. day, 5-day week schedule, this record equals about 30 years' service!

Manhattan is the only manufacturer that makes Endless Belts with *all* of the Strength Member developments described below:

WHIPCORD ENDLESS—Pioneered by Manhattan, featuring Strength Member of a single Flexlastics encased cord wound continuously around in the exact length of your drive. One continuous cord wound to desired width in closely laid parallels with reinforcing cover folded completely around. Embodying no Strength Member splices, Whipcord Endless becomes the smoothest pulling, longest wearing belt—at slow or high speed—on all types of pulleys—on long and short centers. Length is accurately controlled in manufacture. Practically no shrinkage or stretch.

CONTINUOUS-WOUND DUCK PLY BELT—Another Manhattan development. One long strip of frictioned duck of specified width is wound ply over ply in exact length until desired number of plies is reached. The duck ends are then sealed with the Extensible-Tip.

CONDOR-WELD—Developed by Manhattan belting engineers who are credited with being the first to successfully splice transmission belts endless on machines in the field where factory-made endless cannot be applied. The Extensible-Tip splice is an important feature of Condor-Weld. See illustration for typical record of one of Manhattan's early field splices.

EXTENSIBLE-TIP—Applicable to Whipcord and Continuous Wound Duck Ply belts—originated by Manhattan and protected by patent. Eliminates endless belt cover splice failures by a unique method of relieving outer-ply splice stress when passing over the pulley. The Extensible-Tip flexes around pulleys without effort or fatigue, or tendency to separate. Used on all Manhattan Endless Belts, this development has added greatly to the outstanding success of Manhattan Endless Belts.

The term FLEXLASTICS is an exclusive MANHATTAN trade mark. Only MANHATTAN can make FLEXLASTICS.

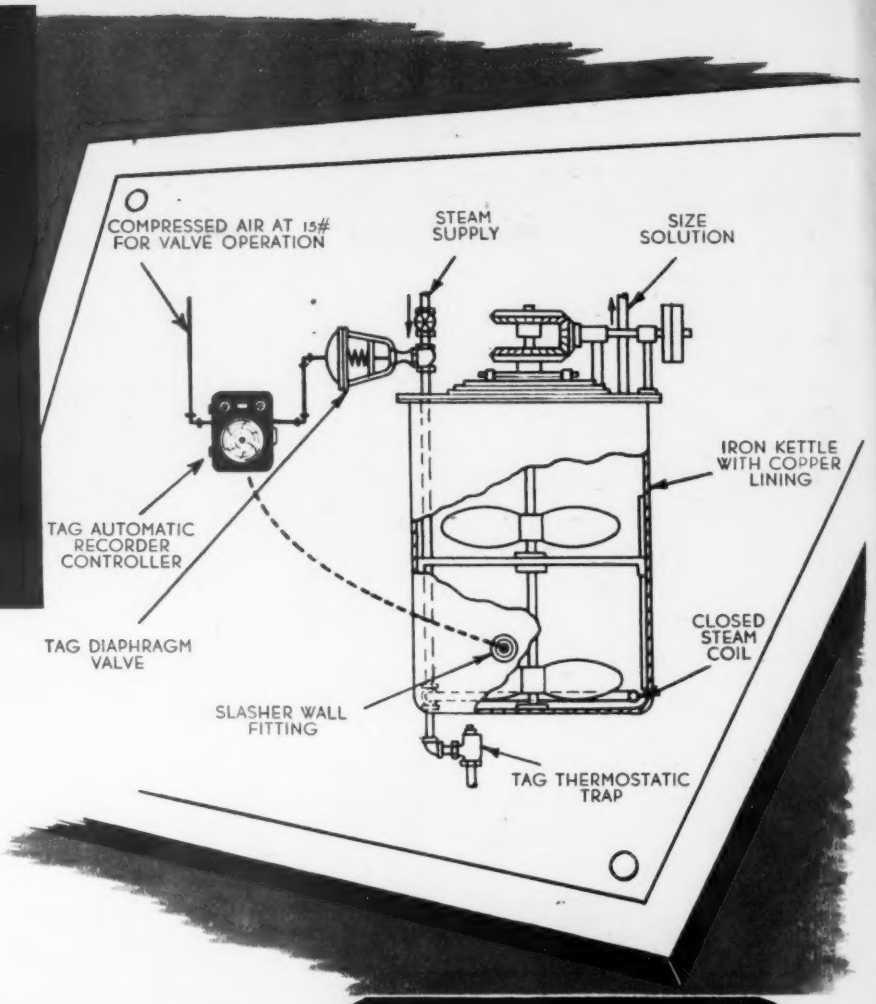
RAYBESTOS R M MANHATTAN

RAYBESTOS-MANHATTAN, INC.

MANHATTAN RUBBER DIVISION

EXECUTIVE OFFICES AND FACTORIES PASSAIC, NEW JERSEY

Try TAG FOR SIZE



Typical size solution storage kettle set-up, showing how TAG instruments are employed for precise, steady control of heat, permitting delivery of solution to size box of slasher at exactly the correct temperature.

In textiles, there's more to size than meets the eye. It's not only necessary to cook it correctly, at the right temperature—it must be *held* at that temperature until applied to the yarn. If heat drops during transfer from cooking kettle to slasher, shedding and spoilage will result. If heat rises unduly, the size will get too thin and lose its penetrating characteristics.

One way to hold size temperatures where you want them . . . in the cooking kettle, storage kettle and slasher box . . . is to use a simple, economical TAG control system. TAG makes a complete line of indicating and recording controllers, every one of which is designed and built for highest accuracy in process control. Without obligation to you, our engineers will be glad to submit their recommendations as to the specific model best suited to your needs. Write for complete details and literature.

TAG

TAG Automatic Recorder Controllers are available in three types: High Sensitivity (On-Off); Full Range Throttling; and Full Range Throttling with Automatic Reset—a specific model for every operation.

C. J. TAGliabue Division 561 Park Ave., Brooklyn 5, New York

PORTABLE PRODUCTS CORPORATION
MANUFACTURERS OF: LAWN MOWERS • ELECTRICAL APPLIANCES • PRECISION STAMPINGS
INDUSTRIAL INSTRUMENTS • RADIOS • SAFETY EQUIPMENT

YOUNG IDEAS WITH
AGE-OLD APPEAL

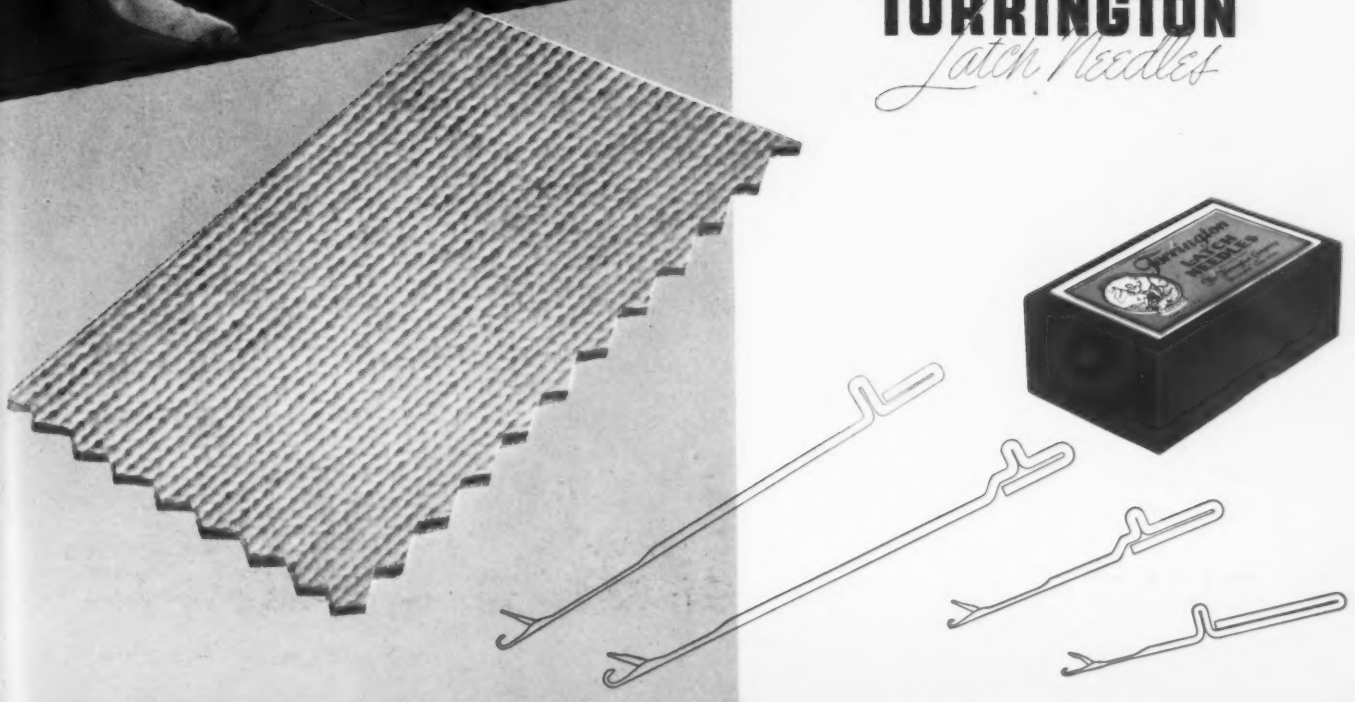
Knitted by TORRINGTON NEEDLES

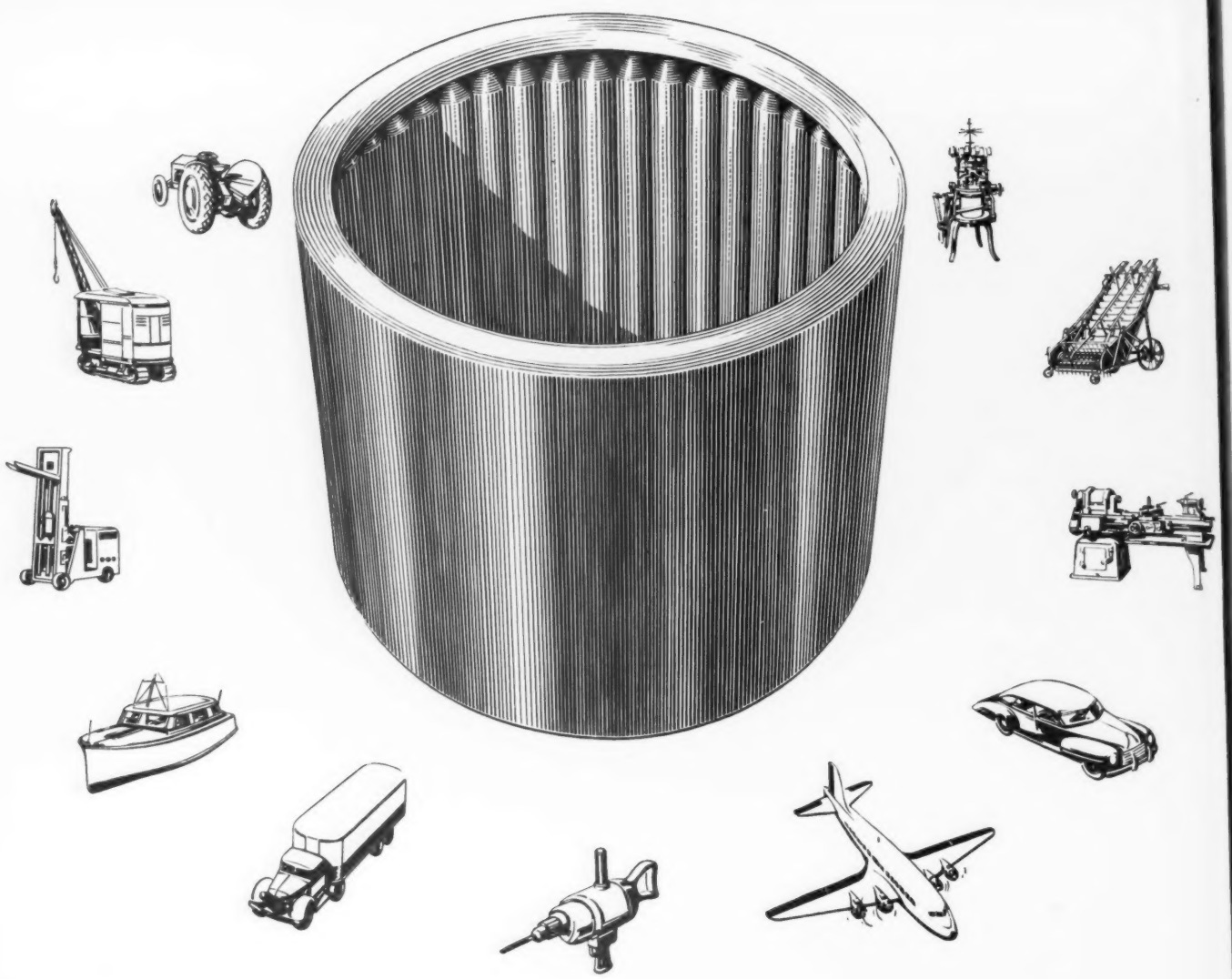
STYLES in children's underwear and hosiery are continually changing but in every good product the basic appeal of fine knitting is always there. It is the foundation of enduring quality upon which successful brand names are built.

And as every experienced knitter knows, good needles are the foundation of good knitting. Torrington Needles are the machine-manufactured needles—controlled to exacting standards of performance by special machine methods. Leading mills throughout the world respect them as the *quality* needles. Why not try them? There's a Torrington Needle for every type of knitting.

THE TORRINGTON COMPANY
Torrington, Conn., U. S. A. **Established 1866**
Branches: New York • Philadelphia • Chicago • Greensboro, N.C. Boston • St. Louis • Toronto, Canada • *Pacific Coast Representative:* E. G. Paules, 1762 West Vernon Ave., Los Angeles 37, Calif.

TORRINGTON
Latch Needles





It has an ever widening circle of application

In virtually every type of mechanical equipment, Torrington Needle Bearings are serving in an increasingly varied range of applications . . . whatever the load and speed requirements.

The reason lies both in their tremendous radial capacity—greater in relation to O.D. than in any comparable bearing—and in their low coefficient of starting and running friction —with no practical speed limitation on their application. Behind these advantages lies the principle of Needle Bearing design—a full complement of small diameter precision rollers which provide maximum area of bearing contact surface.

Then too, many other important Needle Bearing features—compact size, unit construction for easy installation, efficiency of lubrication and low initial cost—widen the scope of their application to modern machines.

As a designer, manufacturer or operator of mechanical equipment, you should know about these and other Torrington Needle Bearing advantages. Write today for our Catalog #32, or consult our Engineering Staff on any specific friction problem.

THE TORRINGTON COMPANY

TORRINGTON, CONN. SOUTH BEND 21, IND.

Offices in All Principal Cities

TORRINGTON NEEDLE BEARINGS

"Diagen" Red AFR—a new stabilized azoic color—is suitable for printing both cotton and rayon. It has very good fastness to washing, dry cleaning, pressing, and crocking. It is easy to apply and develops with great facility. Especially recommended for use whenever brightness and fastness to washing are of major importance.

Our representatives will be glad to provide you with more information on this new product. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

* REG. U. S. PAT. OFF.

Du Pont Dyestuffs DUPONT REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING... *THROUGH CHEMISTRY*

It's the SIDES of a V-Belt That Really Get the WEAR!

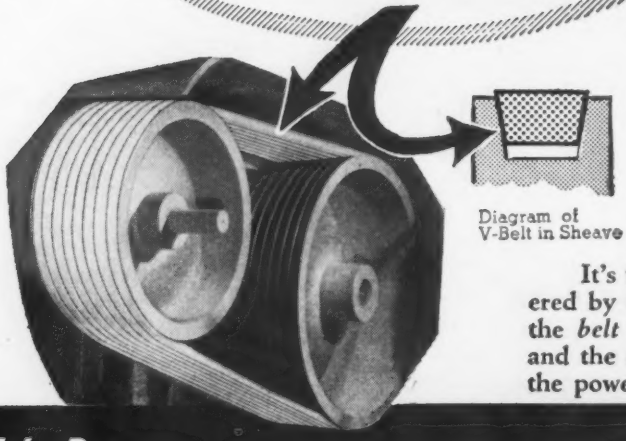
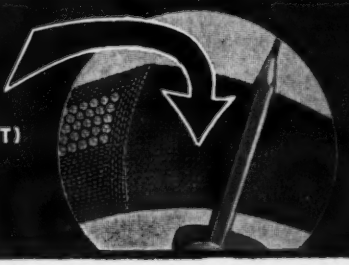


Diagram of V-Belt in Sheave

Look at this diagram of a V-Belt in its sheave. You see at once that the *sides* of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

It's the *sides,* moreover, that pick up all the power delivered by the driver pulley. The sides *transmit* that power to the *belt as a whole.* And then, once more, it's the sides—and the sides *alone*—that grip the driven pulley and *deliver* the power to it.

It's Because the CONCAVE SIDE (A GATES PATENT) Reduces Sidewall Wear That It Is IMPORTANT to You!



The fact that the *side* is the part that does the work and gets the wear explains why you have always noticed that the sidewall of the *ordinary* V-Belt is the part that wears out *first.* Naturally, then, when you lengthen the life of the sidewall you lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, *straight-sided* V-Belt gets excessive wear along the *middle of the sides.* They show also why the Patented Concave Side *greatly reduces* sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Longer Sidewall Wear Is MORE IMPORTANT NOW Than ever before!

Now that Gates Specialized Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

Straight Sided V-Belt — FIG. 1

How Straight Sided V-Belts Bulges When Bending Around Its Pulley — FIG. 1-A

You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall — FIG. 2

Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley. — FIG. 2-A

No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

4612

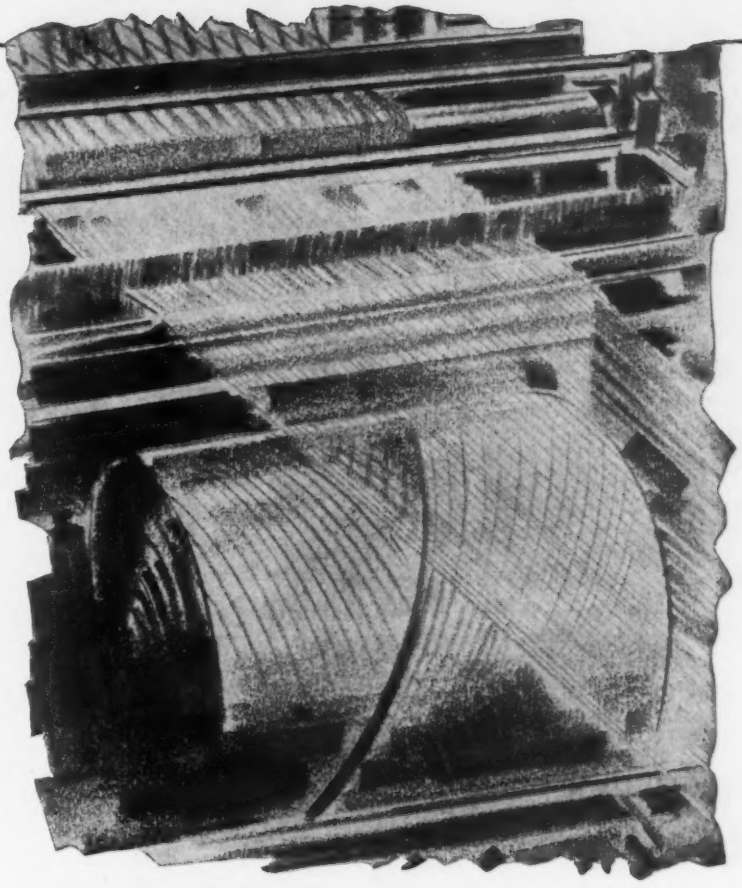
THE GATES RUBBER COMPANY
Denver, U.S.A.
World's Largest Makers of V-Belts

Gates
REG. U. S. PAT. OFF.
THE MARK OF SPECIALIZED RESEARCH

GATES VULCO ROPE DRIVES

Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

"Reduced drag ...with Tycol spindle oil"



"Not a single tube lost . . .
Reduces spindle drag . . .
Reduces bolster losses . . .
Steps up production . . .
Cuts down on maintenance costs . . ."

— says a textile mill operator. "With Tycol Spindle Oil," he goes on, "we're able to operate continuously at top speed — and we don't have to worry about the oil losing its body at operating temperatures."

For further information about Tycol Spindle Oil, get in touch with your nearest Tide Water Associated Dealer.

LUBRICATION — "ENGINEERED TO FIT THE JOB"

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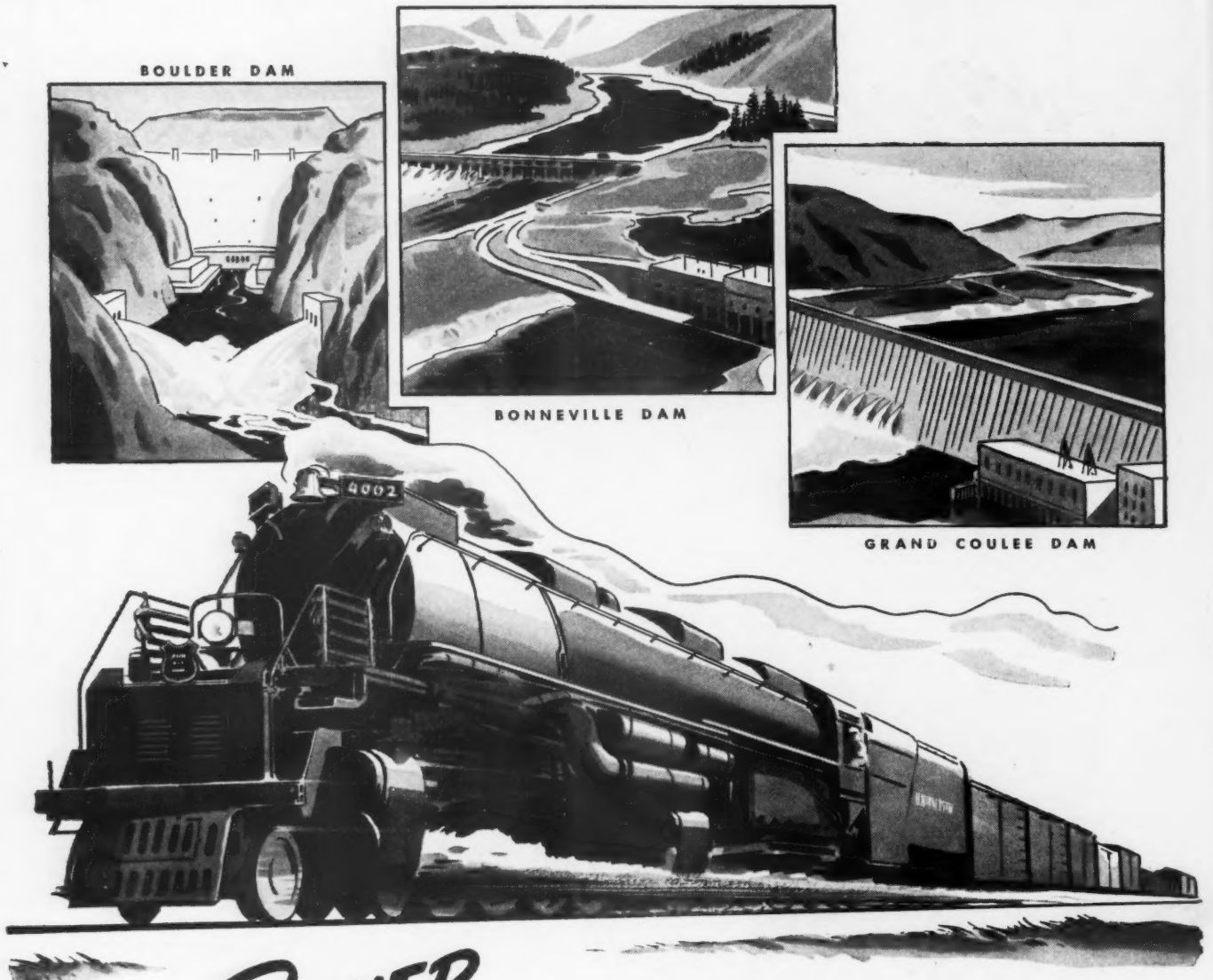
17 BATTERY PLACE · NEW YORK 4, N. Y.

A MESSAGE TO THE TEXTILE INDUSTRY

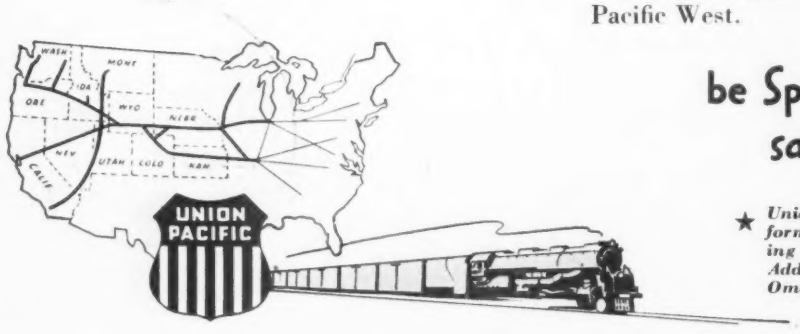


More POWER to You

Three great dams, harnessing the natural force of the Colorado and Columbia Rivers, provide tremendous industrial power.

Giants of the rails, the Union Pacific "Big Boy" locomotives provide freight transportation power over the Strategic Middle Route.

Power, light, and efficient transportation . . . combined with a wealth of raw materials and adequate "growing space" . . . offer unusual opportunities for industry in the Union Pacific West.



be Specific – say "Union Pacific"

★ *Union Pacific will gladly furnish confidential information regarding available industrial sites having trackage facilities in the territory it serves. Address Industrial Dept., Union Pacific Railroad, Omaha 2, Nebraska.*

UNION PACIFIC RAILROAD

The Strategic Middle Route

In All Wooden Textile Parts "Pregwood" Will *Last Longer!*

When woods suitable for textile machine parts were hard to get many producers turned to "Pregwood" which is laminated wood impregnated with resins and cured under heat and pressure at Formica.

In most cases these new "Pregwood" users have found that the new material serves far more efficiently and economically than the old, and "Pregwood" is in to stay.

It has been applied to such uses as tenter frame openers, picker sticks, shuttle bodies and many others. Other grades of Formica have been used for hosiery carriers, knitting machine platforms, inspection tables and truck bodies.

THE FORMICA INSULATION CO., 4668 SPRING GROVE AVE., CINCINNATI 32, OHIO

• For parts traditionally made of wood, try our "Pregwood"

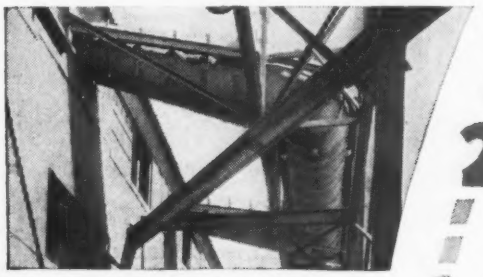
When Lead's on Guard,

Acid toes the Lining...

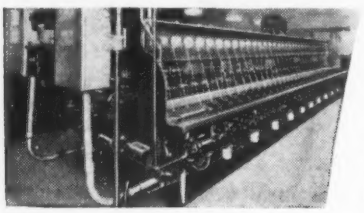
In addition to its proved corrosion resistance, lead is a simple material to install. It can be readily hammered and conformed to any shape. And the sheets are easily burned to form continuous, corrosion-resistant surfaces.

Wherever acid is part of the process, you have the problem of confining acid's bite to useful work...of preventing destructive attack on the equipment itself.

Culled from National Lead Company's broad experience in every field handling corrosive solutions and gasses, here are suggestions that will help make your tank and equipment linings and coverings last longer.



***Chemical Lead** sheet is used to form these dehydrator stack connection flues, in an acid plant, because they carry steam containing sulfuric acid.*



***Tellurium Lead's** ability to stand up under vibratory stress is one of the features that recommend it for the coverings of rayon spinning machines, such as this, and for lining mixing tanks and other equipment subject to vibration.*

***Tellurium-Antimonial Lead** is used to line this oil refinery agitator. The depth of the tank and the relatively few supporting straps called for the use of a lead hardened and stiffened with antimony.*

1 Get the Advantages of Lead

Because of its high corrosion resistance, sheet lead is a standard material for the lining of vats, tanks, agitators and similar types of equipment. It is also employed extensively as a protective covering for apparatus subjected to corrosive fumes or acid splash.

In addition to corrosion resistance, sheet lead has other desirable properties which adapt it to industrial use. Being pliable and malleable, it is easily worked and can be readily shaped. The low melting point of lead facilitates "burning", or welding sheets together to form continuous corrosion resistant surfaces. Finally, sheet lead's relatively low initial cost, long life and high salvage value make it economical to use.

2 Get the Right Lead

In the handling of corrosive chemicals, the following three types of lead are usually employed:

Chemical Lead—This is a practically pure lead, free from bismuth and characterized by the presence of about .06% copper—which increases its corrosion resistance, tensile strength and fatigue strength. It has been so successfully used throughout industry that it is accepted as the base lead for acid-handling purposes.

The other types for industrial use are simply Chemical Lead alloyed with varying quantities of other metals, to meet special service conditions.

Tellurium Lead—This is Chemical Lead to which a small quantity of tellurium has been added. All the desirable qualities of regular lead are retained and certain new ones added.

One outstanding feature resulting from the addition of tellurium is improved corrosion resistance at high temperatures.

Another important quality is the ability to work-harden. Mechanical action, such as rolling, bending, stretching or hammering, increases Tellurium Lead's tensile strength and resistance to fracture.

Antimonial Lead—This is made from either Chemical Lead or Tellurium Lead, alloyed with various percentages of antimony to secure greater mechanical strength.

Lead containing 6% antimony has a tensile strength approximately twice that of Chemical Lead. This fact, combined with its greater hardness and stiffness, makes it suitable for use in tanks where the mechanical strain is severe. Also, Antimonial Lead has added abrasion resistance and can be used where erosion is a problem. Because antimony lowers the melting point, Antimonial Lead is recommended for use only with temperatures below 240° F.

3 Get the Experience of National Lead

If there is no previous service record to guide the selection of lead for a particular installation, consult the technical staff of National Lead Company. They will work with you...help you profit by the experience of users in many different industries. Remember, whether you want a single valve . . . sheet lead for lining a tank . . . or a complete acid recovery plant...it will pay you to *Go "NATIONAL" for Lead.*

Go "National" for Lead

NATIONAL LEAD COMPANY
111 Broadway, New York 6, N. Y.
Offices and Plants
in Principal Cities and Canada

A Bright Knitting Future for You...

MODERN *Standard Durene*

This smooth, even-running mercerized cotton yarn will enable you each day to turn out more garments, better knitted and better looking. Their greater beauty, comfort and wear will please your customers, keep them satisfied.

The secret of Modern STANDARD Durene's sustained quality is our nearly seventy years of cotton yarn manufacturing with complete control of all processes from selection of raw cotton to finished yarn, plus the many new developments brought about by our war experience; and plus our never ending search for ways to improve the quality of Modern STANDARD Durene.

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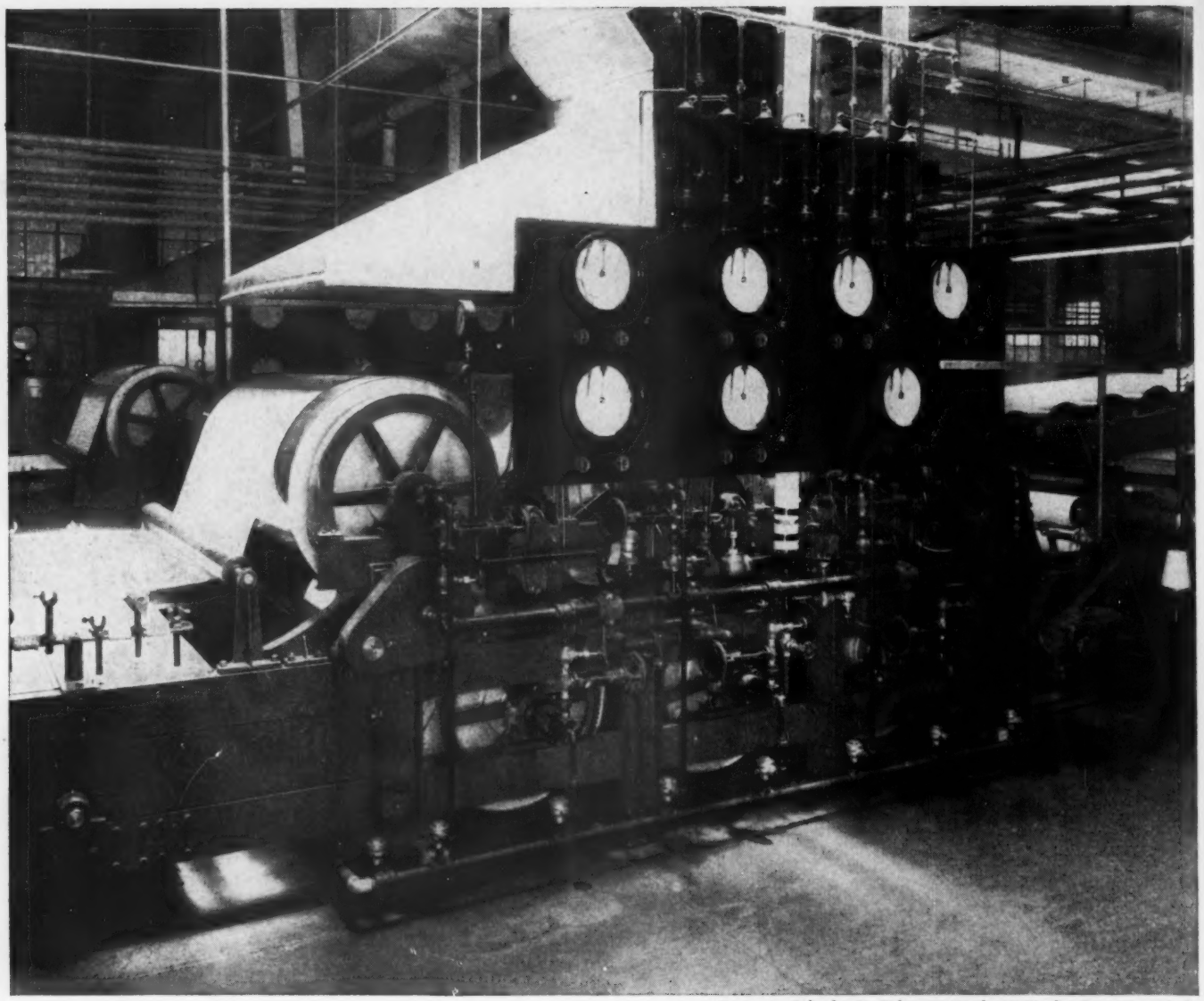
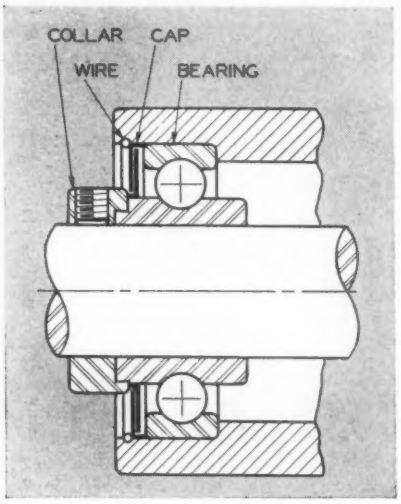


Courtesy, Charles B. Johnson Machine Works, Paterson, N. J.

A **BIG** MACHINE WITH A *delicate* TOUCH



IN ORDER for the Johnson Warp Sizer to do its precise job of handling delicate synthetic yarns, heavy pressure and drying rolls must be friction-free, drag or vibration must be completely eliminated. That calls for ball bearings throughout. For 90% of the bearings in this remarkable machine Johnson uses Fafnirs.

Johnson uses Fafnir Radials and Fafnir Wide Inner Ring Ball Bearings with the exclusive Self-Locking Collar . . . easiest of all bearings to install and remove. The complete line of Fafnir Ball Bearings includes standard and special units for practically every textile machine made.

Write for copy of Catalog, "Fafnir Ball Bearings for Textile Machinery". The Fafnir Bearing Company, New Britain, Conn.

MOST COMPLETE LINE IN AMERICA

FAFNIR BALL BEARINGS

a very merry christmas
and
best wishes for the New Year
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For Manufacturers and Merchants

Inquiries as to our services solicited

●

ESTABLISHED 1840

TECA

HAND-STAPLE a specimen of TECA, Eastman *crimped* acetate rayon. Note the uniformity the fibers—insuring the smooth, even blending ential for successful cross-dyeing. Feel their ltness—it makes for richer textures. Stretch and ax the fibers—this resilience gives a weave extra fe," extra resistance to sagging and crushing.

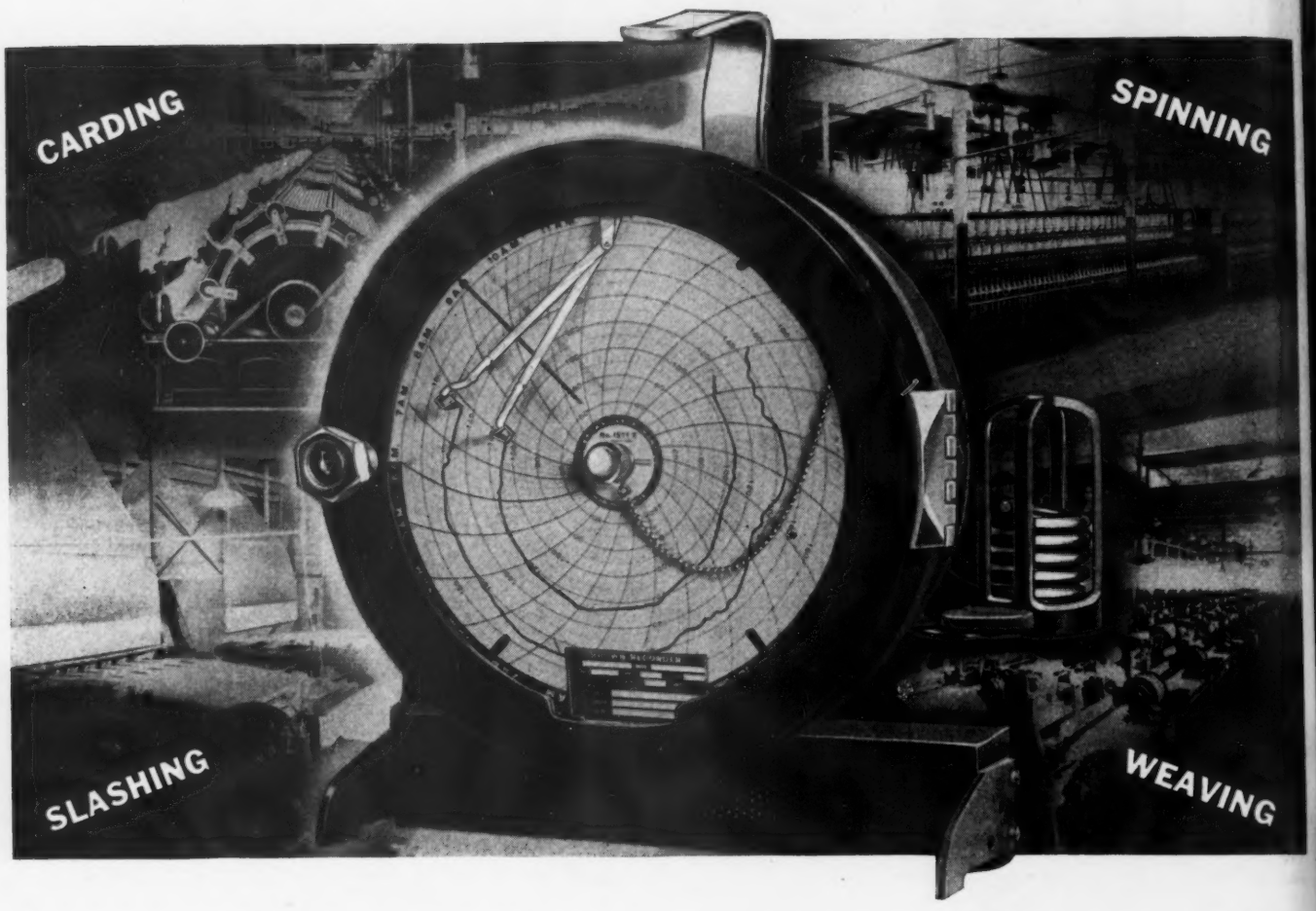
Men who know textile fibers know TECA will turn a consistently good performance on any spinning stem—cotton, rayon, wool, or worsted. And it turally follows that such uniformity will help turn t a top-quality fabric—not once, but *every time.*

• • •

r further information about Teca, consult A. M. Tenney Asso-ates, Inc., 10 East 40th Street, New York 16, sales representatives TENNESSEE EASTMAN CORPORATION (*Subsidiary of the stman Kodak Company*), KINGSPORT, TENNESSEE.

Eastman Crimped Acetate Rayon

Every Textile Mill—



NEEDS THIS HANDY PORTABLE INSTRUMENT

In textile mills, the importance of frequent room temperature and relative humidity checks is well-known. The Brown Thermometer-Hygrometer provides a convenient means for checking these factors throughout the mill.

This extremely light weight instrument can be set anywhere and will produce an accurate record of room temperature and relative humidity on either a twenty-four hour or seven-day revolution chart.

The well-guarded, mercury-filled temperature sensitive element is located on the side of the case and the large perforated steel section built into the base holds an extra long hygroscopic element. Notice, both of these oversized elements are located outside the case where they are in full contact with room atmosphere.

The convenient handle and strong base make this sturdy instrument readily portable. The combination door lock and handle prevents unauthorized access to the records. A green ink line records room temperature; while a purple line directly records percent of relative humidity on an 8" diameter chart. (Range 0-100°F. and 0-100% relative humidity.) No humidity tables are required.

Write for Catalog 6707. THE BROWN INSTRUMENT COMPANY, a division of Minneapolis-Honeywell Regulator Co., 4509 Wayne Avenue, Philadelphia 44, Pa. Offices in all principal cities.

TORONTO, CANADA — LONDON, ENGLAND
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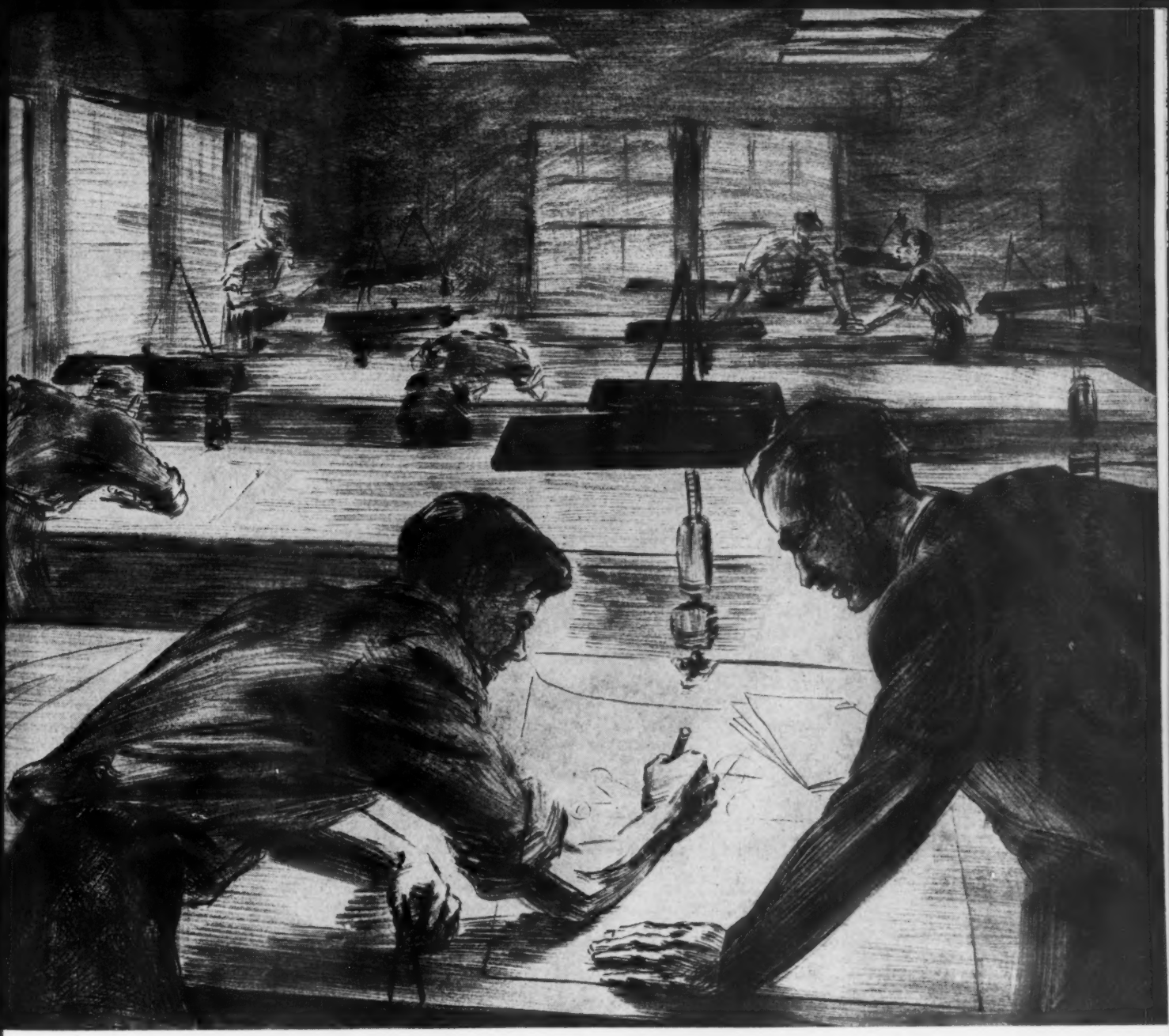
SPECIFY WHEN ORDERING

(1) Model Number (See table below).
(2) Chart #1565 for 24-hour revolution; or #1571 for 7-day rev.
(3) Electric (state voltage and frequency) or spring wound clock chart drive.

MODEL NUMBER	DESCRIPTION	PRICE
6882-601	Portable Thermometer-Hygrometer (as illustrated)	$146.00
6881-X01	Hygrometer Only	$104.00
6081-X01	Thermometer Only	$104.00

NOTE: For 7-day spring wound clock only—add $6.00

BROWN THERMOMETER-HYGROMETER



NOT JUST NUTS AND BOLTS

It takes more than nuts, bolts, motors and gears to make successful textile machinery. IT TAKES KNOW-HOW.

Van Vlaanderen design and engineering know-how has been proven time and again since the turn of the century.

That know-how is at work again—providing new machines to give larger production, higher quality and greater economy than ever before.

VAN VLAANDEREN
MACHINE COMPANY

370 STRAIGHT ST., PATERSON 3, NEW JERSEY

World's largest manufacturer of machines for processing modern fabrics.

MAXITORQ FLOATING DISC

NO TOOLS *needed*

. . . FOR *Installation*
. . . FOR *Adjustment*
. . . FOR *Take-apart*

Floating Disc Clutch

No Heating in Neutral

. . . *When you select the* MAXITORQ

If you are in any way dissatisfied with your present clutch transmission . . . either in installation, dependability of action, long life, or over-all costs . . . we suggest a prompt investigation of the Maxitorq. It is entirely new in conception . . . new in valuable features . . . and new in its enthusiastic reception by leading machine designers. We've made good clutches only, for more than 40 years, but the Maxitorq basic principle provides clutch performance far in advance of any previous models.

It is extremely compact yet as rugged as a serviceable clutch must be . . . there's no heating in neutral because the discs are "floated" apart by patented "Separator Springs" . . . while "in" and "out" are fast and positive, controlled with the lightest pressure. Moreover, the entire clutch may be taken apart or adjusted *without tools.* Capacities, ¼ to 15 H.P. at 100 r.p.m.

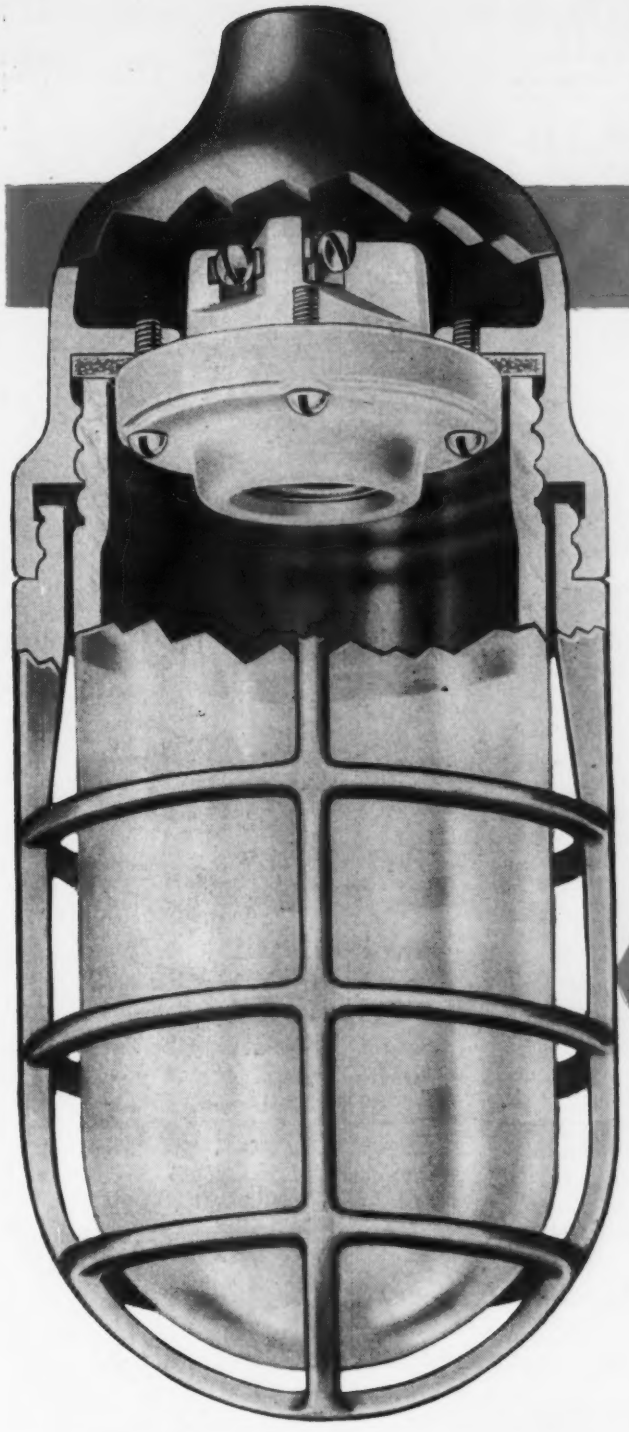
For really dependable power transmission look to MAXITORQ.

SEND FOR CATALOG NO. 4612.

TRADE MAXITORQ MARK

THE CARLYLE JOHNSON MACHINE COMPANY
MANCHESTER CONNECTICUT

MAXITORQ FLOATING DISC
MAXITORQ FLOATING DISC
MAXITORQ



Vaportight
Industrial Lighting
CONDULETS

(CONDULETS are made only by CROUSE-HINDS)

For use in indoor and outdoor locations where exposed to non-explosive vapors and gases or moisture and rain. Also for use where exposed to non-combustible dusts or where lodgement of combustible fibres or flyings is unlikely.

Vaportight and raintight.

Wiring chamber remains vaportight even though globe is off.

Screw guard or clamp guard types.

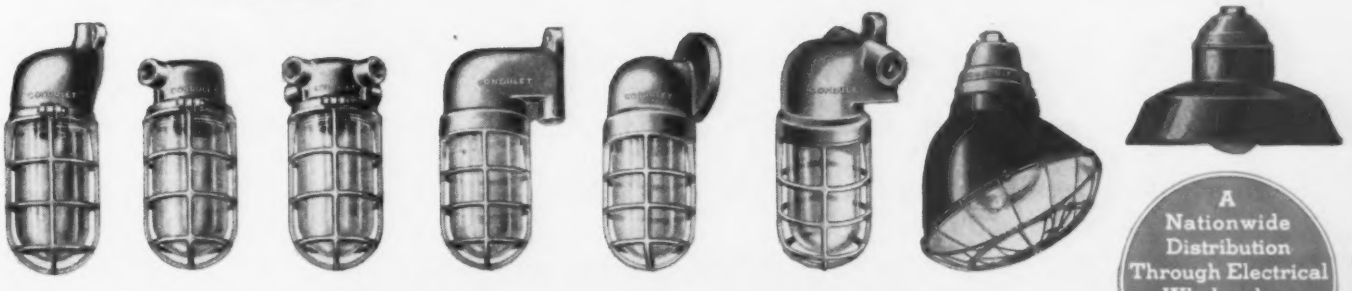
12 Hub arrangements.

4 Reflector styles.

Accessories: colored globes, guards, half shades, adapters.

4 Sizes: 50 through 500-Watt.

Other ***Vaportight*** lighting fixtures are available for attachment to many round-base Condulets and sheet steel outlet boxes. Crouse-Hinds complete ***Vaportight*** line includes hand lamps, switches, plug receptacles, and other electrical devices.



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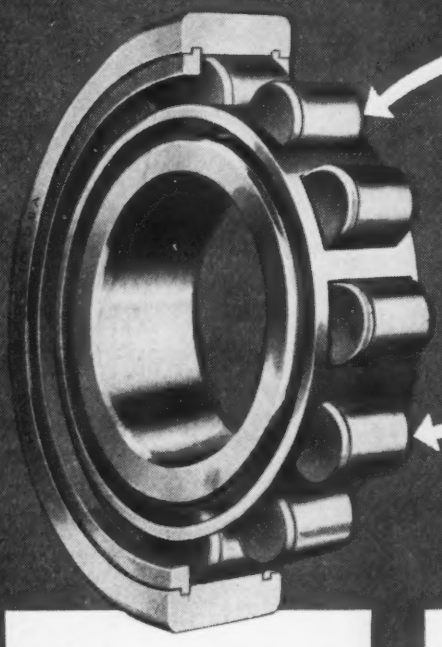
WHY Rollers DO A JOB WHILE THEY Roll—



1.

This cutaway section of a Hyatt Roller Bearing shows the rollers which roll within the confines of special alloy steel races.

2.

This is a typical Hyatt solid, special steel roller removed from the bearing.

3.

The load is distributed evenly over the length of the roller assuring maximum load-carrying capacity.

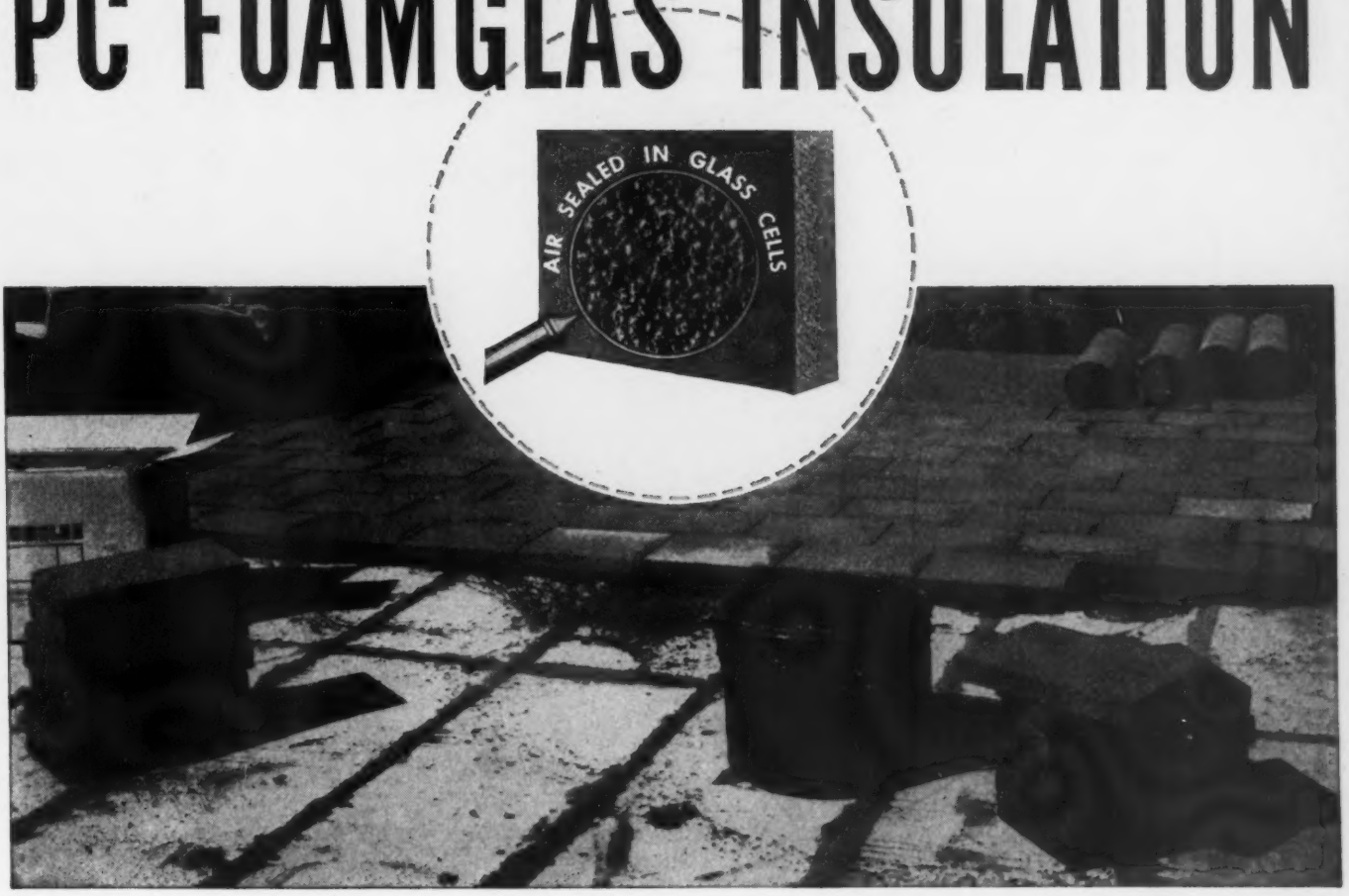
Hyatt Roller Bearings reduce friction in countless machines and equipment . . . in mills and factories . . . on farms . . . oil fields . . . railways . . . highways and skyways. Hyatts, for more than half a century, have been helping things run smoother and longer.

Hyatt engineers will gladly answer your bearing questions and depend upon it . . . the right answers. Hyatt Bearings Division — General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

SAVE TIME AND MONEY WITH

PC FOAMGLAS INSULATION



AN important cost factor in insulating jobs is the labor cost of installing the insulating material. And men who have used many kinds of insulation can tell you that PC Foamglas is so light in weight, so conveniently packaged, that it can be installed more quickly by fewer men – saving both time and money.

PC Foamglas, the cellular glass insulation, is fireproof, waterproof and verminproof. It is unaffected by excessive humidity, impervious to common acids. It therefore retains its original insulating efficiency indefinitely, without repairs or maintenance. That means protection against the additional cost which is incurred when defective insulating material has to be torn up and replaced.

In walls and floors, on flat deck roofs, of all sorts of plants all over the country, PC Foamglas is helping to maintain desired temperature levels, to minimize condensation, economically, *permanently*.

You will find a lot of helpful information in our manuals on PC Foamglas insulation. Lavishly illustrated, they contain valuable engineering data, tables, charts and installation details. Check your choice on the convenient coupon, mail it to us and free copies of our booklets will be sent to you promptly, without obligation. Pittsburgh Corning Corporation, Room 199, 632 Duquesne Way, Pittsburgh 30, Penna.

LIGHT IN WEIGHT, rigid and strong, PC Foamglas is conveniently packaged for easy handling on the job. It can be installed quickly by minimum crews, thus saving time and labor cost.

· Also Makers of PC Glass Blocks ·

PC FOAMGLAS *Waterproof Fireproof* **INSULATION**

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STAYS

ALIVE

L-O-N-G-E-R

TESTS prove that NON-FLUID OIL stays "alive" longer than lubricating greases when used on ball and roller bearings. This is due to the unique process by which NON-FLUID OIL is made, and through which it acquires greater stability and higher protective properties than can possibly be afforded by grease lubrication. Even greases which do not dry out or harden after a period of time, actually become "dead" and have little lubricating qualities.

We invite you to send for testing samples which will prove our claim that NON-FLUID OIL stays "alive" l-o-n-g-e-r, outlasting ordinary lubricants 3 to 5 times.

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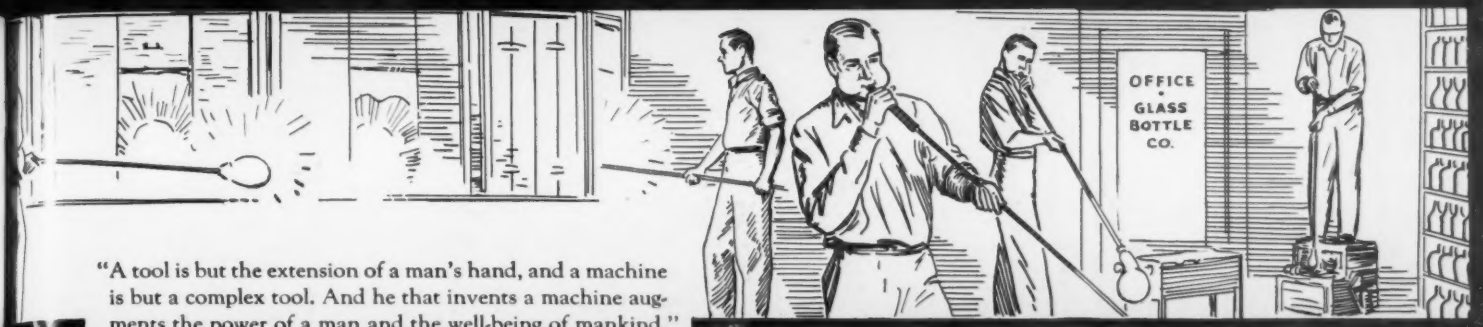
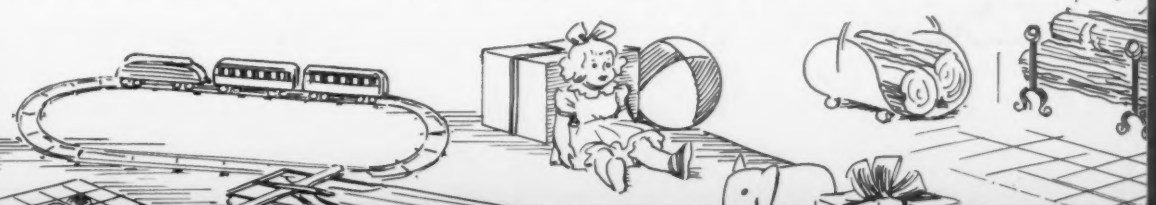
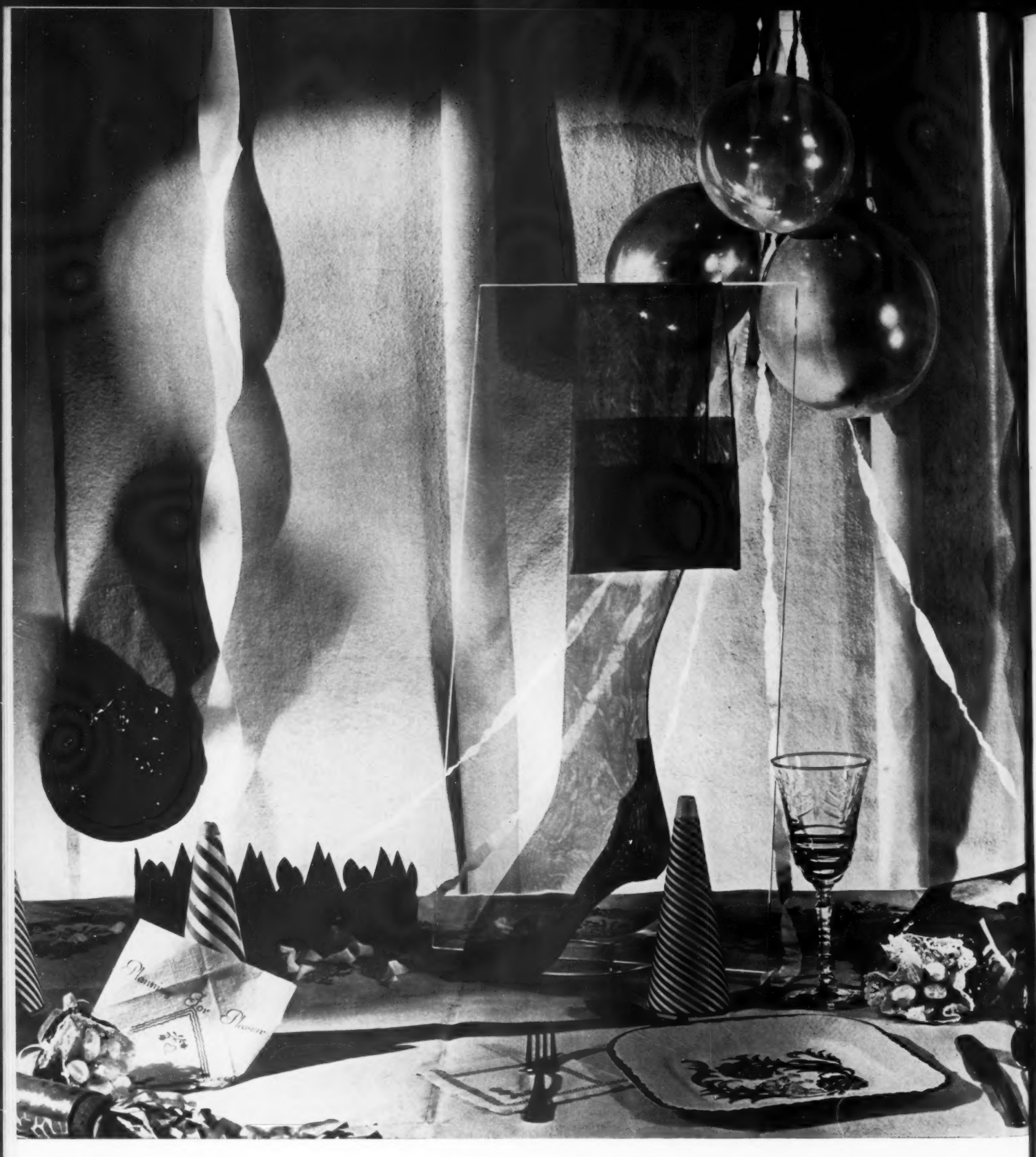


"A tool is but the extension of a man's hand, and a machine is but a complex tool. And he that invents a machine augments the power of a man and the well-being of mankind."

Modern machines have made Americans the world's most efficient workers, and with every increase in efficiency, the worker has increased his share of the good things of life and the time in which to enjoy them. In Full-Fashioned Knitting, the READING Machine is the machine that insures the high standard of living of the thousands of skilled workers in the industry.

TEXTILE MACHINE WORKS · READING, PA.





Planning for Pleasure . . . Plans for milady's pleasure must include the sheer, flawless perfection of full-fashioned stockings. Such perfection is the result of fine needles. TMW Needles are Fixture Drawn*, an exclusive TMW process which holds the needles straight and true, assuring higher quality in the production of full-fashioned stocking fabrics. Let us put your needle bars in shape for faster, more accurate, more profitable knitting.

* Reg. U. S. Pat. Off.

TEXTILE MACHINE WORKS • READING, PA.

Everything for your Piping Job from One Complete line

The type of installation—or size of the job—makes no difference. Whatever your piping needs—selecting from the *complete* Crane line assures the maximum benefits of standardization.

For this ammonia compressor installation, for instance, one order to your Crane Branch or Wholesaler covers all the piping materials. Specifying, buying, and erecting—every step of the job is simplified because you deal with a single, responsible source. And watch how it speeds piping maintenance work.

With top quality assured by Crane Co.'s 90-year leadership in the field, standardizing on Crane equipment gives you this 3-way advantage:

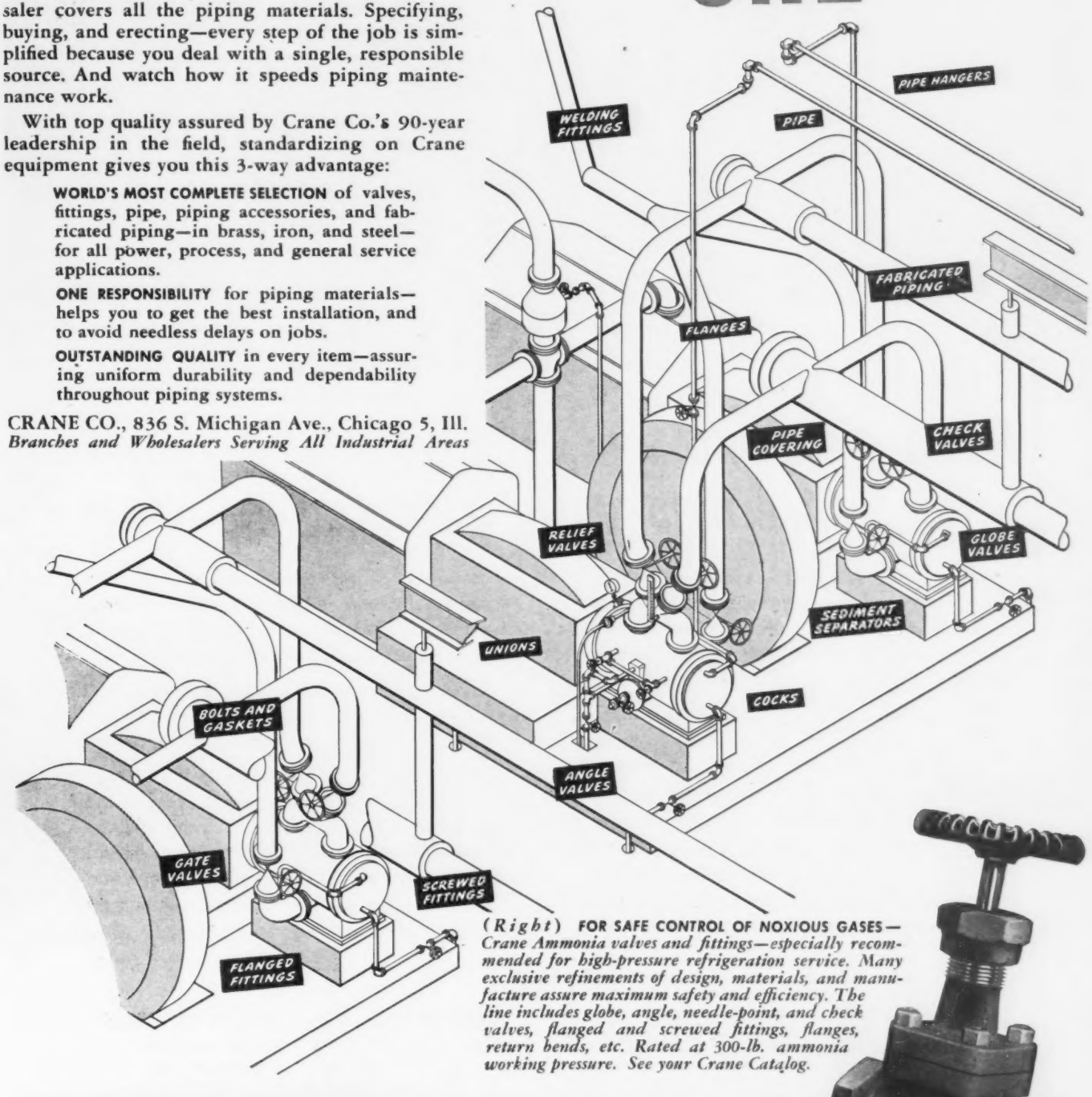
WORLD'S MOST COMPLETE SELECTION of valves, fittings, pipe, piping accessories, and fabricated piping—in brass, iron, and steel—for all power, process, and general service applications.

ONE RESPONSIBILITY for piping materials—helps you to get the best installation, and to avoid needless delays on jobs.

OUTSTANDING QUALITY in every item—assuring uniform durability and dependability throughout piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

ONE
SOURCE OF SUPPLY
RESPONSIBILITY
STANDARD OF QUALITY



(Right) **FOR SAFE CONTROL OF NOXIOUS GASES**—*Crane Ammonia valves and fittings—especially recommended for high-pressure refrigeration service. Many exclusive refinements of design, materials, and manufacture assure maximum safety and efficiency. The line includes globe, angle, needle-point, and check valves, flanged and screwed fittings, flanges, return bends, etc. Rated at 300-lb. ammonia working pressure. See your Crane Catalog.*

EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
HEATING • PUMPS

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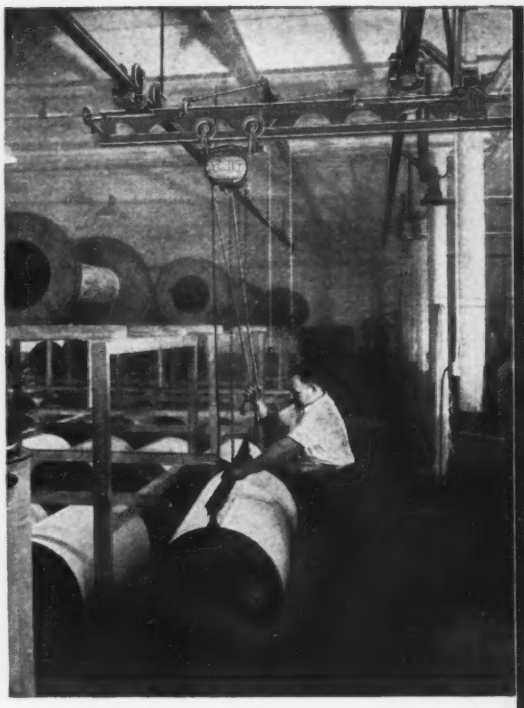
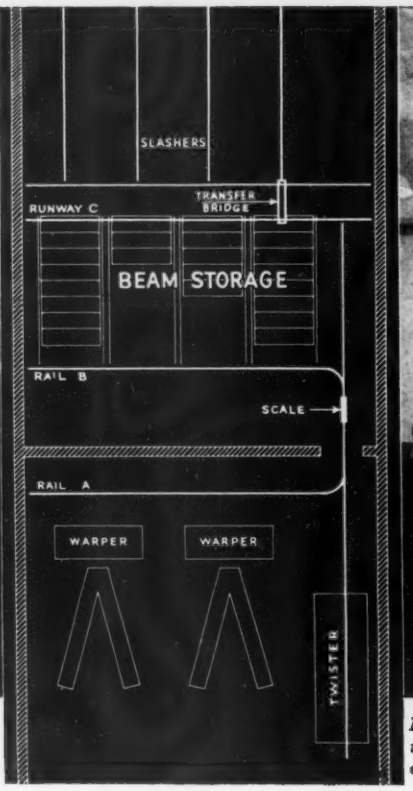
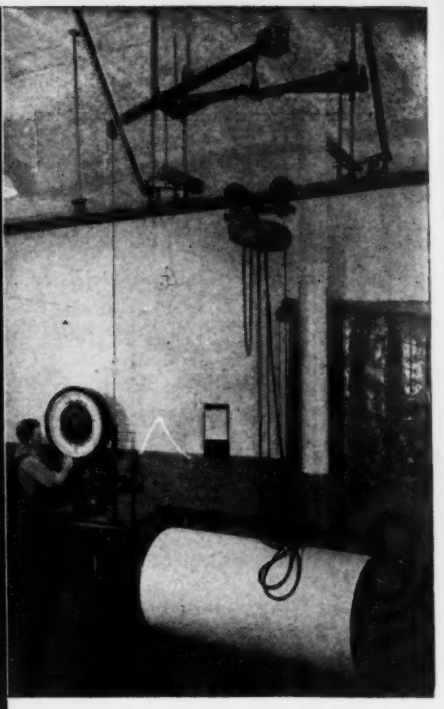
FOR EVERY PIPING SYSTEM



Heavy beams are easily removed from the storage rack and transferred to any of the rails over the slashers with this transfer bridge.





It is a simple, easy job to weigh beams with this track scale. The carrier with beam is stopped on a floating track section and weight recorded.

BEAM HANDLING AND STORAGE SIMPLIFIED WITH CLEVELAND TRAMRAIL

· Cleveland Tramrail overhead materials handling equipment provides a very convenient and efficient method of handling and storing warp beams in cotton mills that saves space, time and facilitates the work.

The layout above illustrates how one mill delivers beams by means of Cleveland Tramrail directly from the warpers or twister to the beam storage where racks are provided for storing them on three different levels.

The beams are placed into the racks from Rail B, and removed to the slashers by use of the transfer bridge on Runway C. The transfer bridge enables the delivery of beams to any slasher. As beams are removed from the racks the beams behind are rolled ahead; thus they are put through to the slashers in the same sequence as made up.

A Tramrail track scale is incorporated into the system, as shown, making it a fast, easy job to weigh the beams as they are taken to storage.

Cleveland Tramrail equipment can be supplied to mills producing or converting to the production of war materials. Others who do not have a sufficiently high priority rating are urged to write for data on Cleveland Tramrail and begin formulating plans now for future development.

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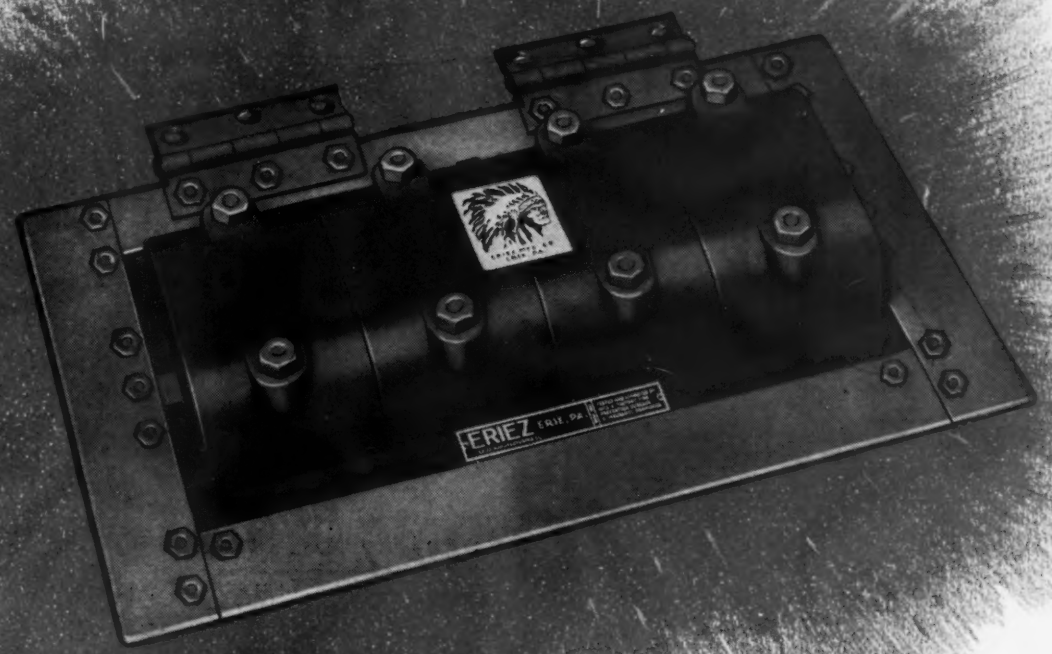
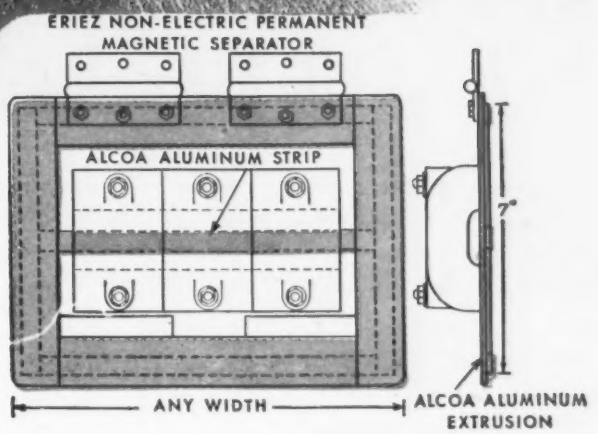
Because Aluminum is nonmagnetic, it helps catch tramp iron



Permanent magnets in Eriez Non-Electric Magnetic Separators provide the powerful pull which removes and holds on to tramp iron.



All the power of these Alnico permanent magnets is available for useful work—removing tramp iron from materials passed near them. Their mounts are nonmagnetic Alcoa Aluminum, so there's no short circuiting of the magnetic forces.

Some users go a step farther, and make complete chutes and troughs of Alcoa Aluminum, thus avoiding dissipation of magnetic forces there. Materials passed through them get added protection; aluminum is highly resistant to corrosion, so there's less chance of contamination.

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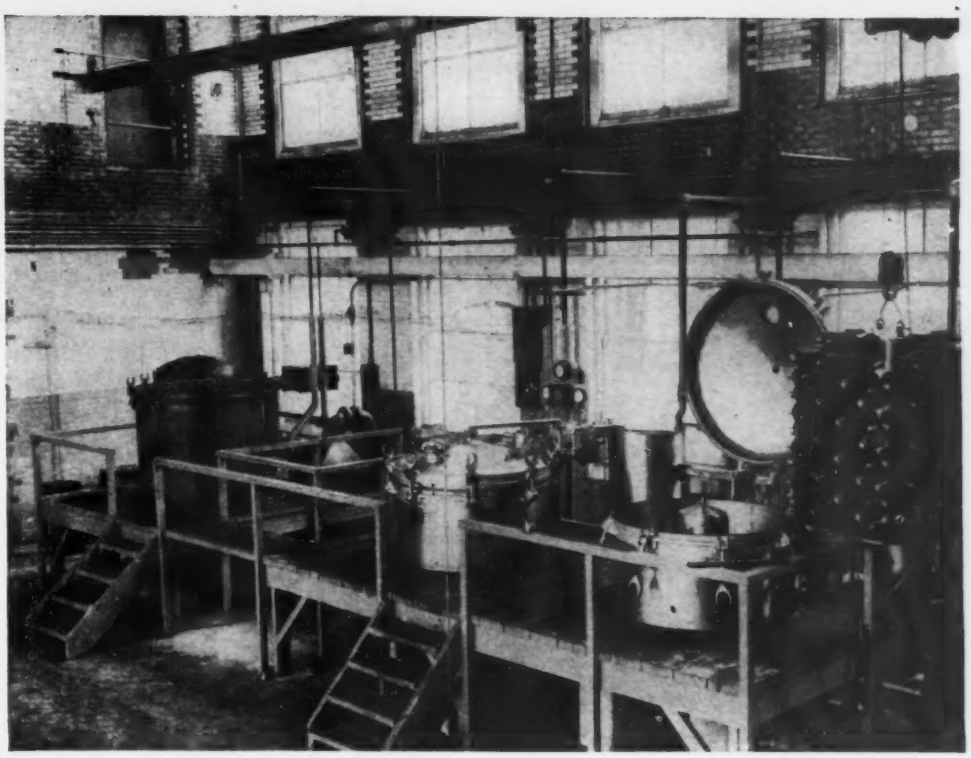

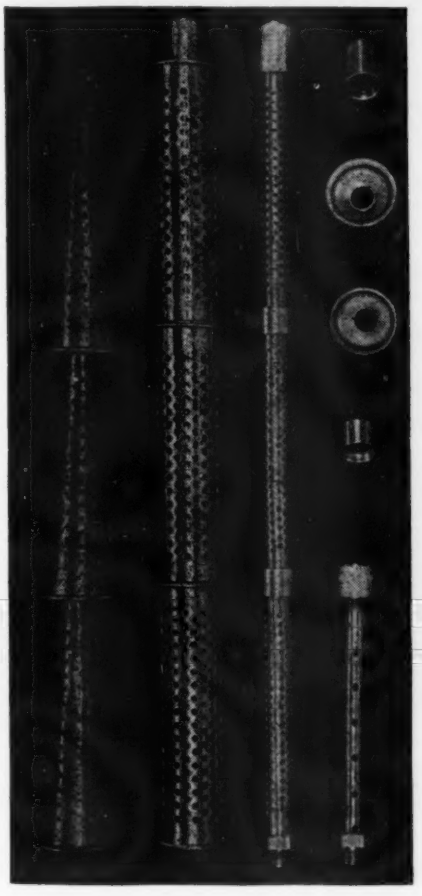

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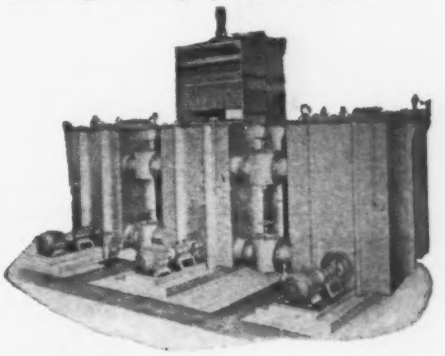

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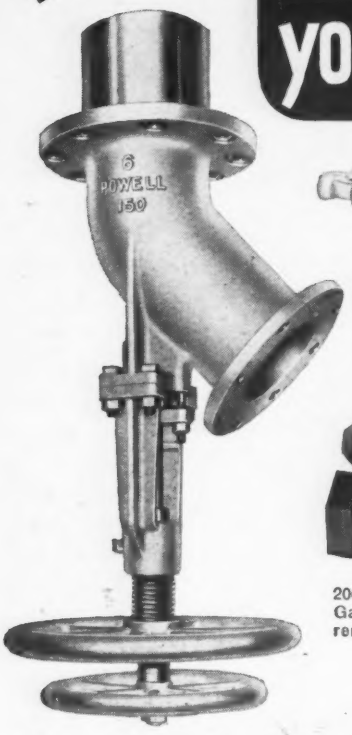

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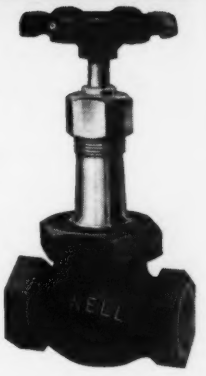

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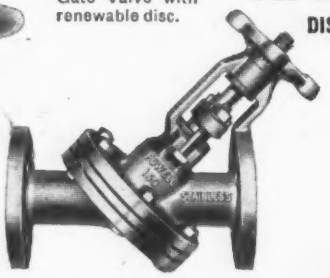

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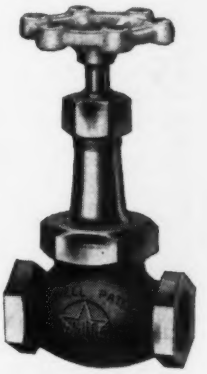

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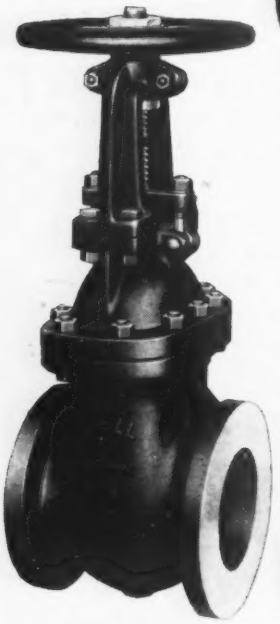
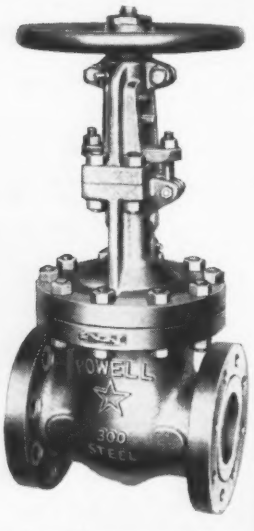


125-pound Iron Body Bronze Mounted or All Iron O. S. & Y. Gate Valve.



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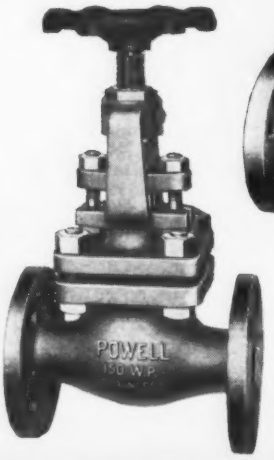
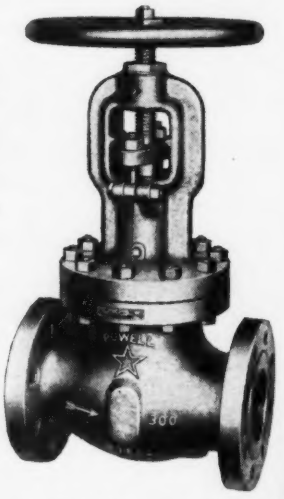
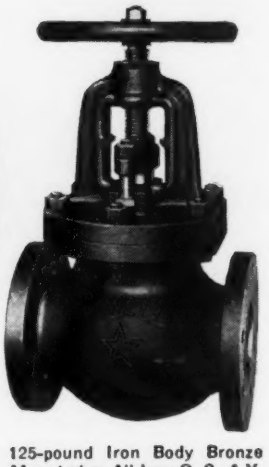


150-pound Stainless Steel O. S. & Y. Gate Valve.



Class 300-pound, Cast Steel O. S. & Y. Globe Valve.



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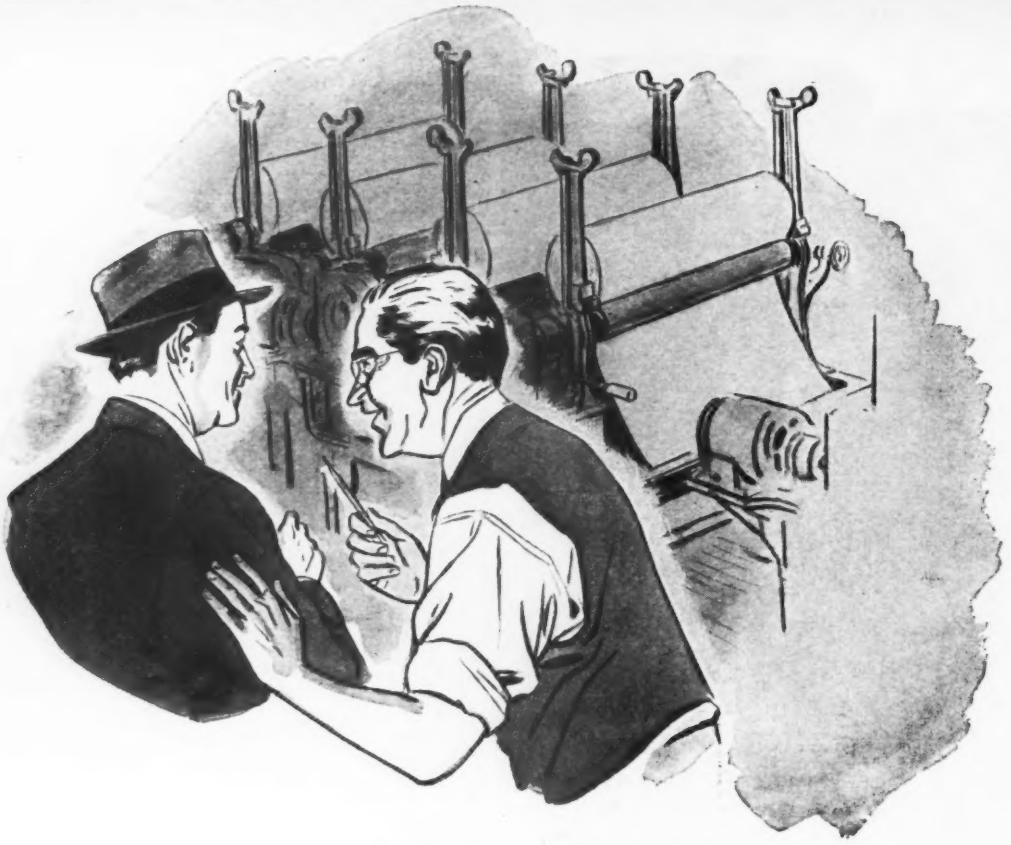

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THE LABOR CRISIS

..."Absolute power corrupts absolutely"

THE NEW CONGRESS is going to overhaul the federal laws governing organized labor. If the election returns left any doubt about that, John L. Lewis has removed it by torturing the nation with its second soft coal strike in six months.

If, however, the overhauling is to get at the roots of our labor troubles, it must go further and deeper than most of the proposals would go. Indeed, it must not stop until it has dealt decisively with that most basic cause of devastating trouble—the entrenched monopolistic power of enormous international unions, now concentrated in a handful of union leaders. Industry-wide collective bargaining is one outgrowth of this power.

"Power tends to corrupt, and absolute power corrupts absolutely." That great truth, phrased by the historian Acton, is as true of labor leaders as it is of business leaders, princes or potentates. It is also true that John L. Lewis and some of his fellow labor leaders now wield what approaches absolute power in their respective domains. Failure to recognize these facts and act on them can make a tragic mockery of the present opportunity to restore good sense and good order to our labor relations and our national life.

To realize this opportunity the labor monopoly must be made a major target.

In the minds of many people, particularly in the business community, the root cause of our labor troubles is to be found in the National Labor Relations Act, commonly called the Wagner Act. They feel that if they could get rid of the one-sided handling of a number of key labor problems provided by that act and its administrators, we would have the legislative part of the problem of creating good labor relations pretty well solved.

To be sure, there is occasion, long overdue, to balance up the lopsided treatment of labor relations by the Wagner Act and those who apply it. It has been so interpreted and applied as to deny free speech to employers. On occasion it has extended the special protection of the federal government to workers striking to force employers to break the law. It has done the same for workers striking to force the federal government to change its policy the way the strikers want it changed.

The Wagner Act has required employers to bargain with unions, but imposed no companion obligation upon unions to bargain with employers. It has given protection to workers who have broken their agreement by striking. It has been applied so as to break orderly lines of management by encouraging and giving special protection to union organization of foremen who, to do their work efficiently, must represent management. Abuses such as these should be cleaned up, and soon.

Monopoly is the Target

But if perfection were attained in eliminating all of the abuses stemming from the Wagner Act, numerous and grievous as they are, the basic problem of establishing the legislative foundations of sane and safe labor relations in the United States would by no means be solved. John L. Lewis and his fellow labor dictators would, no doubt, be annoyed, but their power would not be seriously impaired. ***That** power is derived from monopoly control of **labor.*** Just as in the case with any other kind of monopoly power, it will only be made subservient to the public interest by attacking it at the source and smashing it.

The way to do that is to apply the anti-monopoly laws to monopolies in the field of labor just as they are applied to business and industrial monopolies. At the same time more vitality should be pumped into these laws all along the line.

When our basic anti-monopoly law, the Sherman Antitrust Act, was passed in 1890, it was designed to apply to economic monopolies of all kinds, and was so held by the courts. Organized labor sought exemption from this law, largely on the ground that its bargaining power was weak, as compared with that of industrial corporations. In recent decisions, a majority of the United States Supreme Court

justices have held that, when combined with the Clayton Act of 1914, the Norris-La Guardia Act of 1932 gives organized labor virtually complete exemption from the antitrust laws.

In the meantime, the relative weakness in bargaining power which was made the occasion for exempting organized labor from the antitrust laws has become a myth. In soft coal, John L. Lewis is the monopolist. Through his United Mine Workers he controls about 90% of the miners. No one of the thousand or more highly competitive companies engaged in soft coal mining controls more than about 5% of the output.

In steel the monopoly control is that of Philip Murray's United Steel Workers whose organization represents well over 80% of the production workers in that industry. United States Steel, the corporate "giant," controls only about one-third of the steel making capacity. In automobiles the United Automobile Workers represent about 90% of the production workers. A year ago the union's officers flaunted their monopoly power by announcing plans to pick off one automobile manufacturer after another by a series of centrally controlled strikes.

Industry-Wide Bargaining

Confronted by the rise of government-fostered monopoly power in the hands of organized labor, employers in some industries have sought to match it by joining together for collective bargaining on a more or less industry-wide basis. In other industries, notably steel, the federal government, through the War Labor Board, took the lead in forcing a pattern of industry-wide bargaining. Bedevilled by a myriad of cases, the Board thus sought to settle scores of them in the steel industry by one action.

It is easy to understand how an employer, confronted by an industry-wide monopoly of labor, would be tempted to join with his fellow employers in an industry-wide bargaining group. In that way he might see a chance to establish something like equality in bargaining power.

However, if the employers' bargaining group were as effective as the union in creating a monopoly set-up, it would merely confront one monopoly with another. That, in turn, would heighten the chances of having either a devastating head-on collision as a result of failure to agree, or having the two monopolies reach an agreement at the expense of the consuming public.

Actually, however, the chances that employers can create an industry-wide bargaining group as tight as that created on the side of labor by union organization are virtually zero. For if a group of employers were to agree to shut down in unison or take other united steps to balance the bargaining power created by the threat of a monopolistic union to strike, they would unquestionably find themselves on the receiving end of an indictment for violation of the federal antitrust laws.

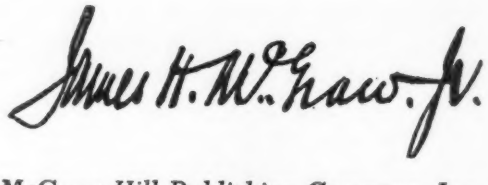
To Break the Monopoly

Thus, both from the point of view of the public and the point of view of the employer, industry-wide bargaining is no effective offset to the monopoly power created by industry-wide unions.

The only way to cope with this monopoly power is to subject it to the anti-monopoly laws in the same way business and industrial management are subjected. In the process industry-wide labor monopolies would be cut down to safe size, possibly by limiting the percentage of workers in any industry who are permitted to belong to a single labor organization.

Also application of anti-monopoly laws would clean out local pockets of labor monopoly which block the way of industrial progress. As matters stand, the freedom of unions from control by the antitrust laws permits organized workers in one city to refuse to install equipment shipped in from another city, thus establishing private tariff walls. It also permits organized workers to refuse to install or work on materials made by other workers whose union affiliation, or lack of it, they do not like.

If the anti-monopoly laws were applied to organized labor, boycotts of this sort would be outlawed. In the aggregate they now take a tremendous toll for no legitimate purpose. But primarily John L. Lewis and a handful of his fellow labor dictators might be cut down to a size that can be safely accommodated by the American democracy. If that is not done, the last great opportunity to give industrial and political democracy a chance to work, in its last great stronghold, will be lost. From such a tragic turn of events no one would lose more than the American worker.



President McGraw-Hill Publishing Company, Inc.

TEXTILE WORLD

DECEMBER, 1946 : VOL. 96 : NO. 12

25 Years of TEXTILE CHEMISTRY And Its APPLICATION

Cooperation Stands Out in HISTORY of AATCC

HIGHLIGHTS: Finishing division of the textile industry owes much to the American Association of Textile Chemists & Colorists—Test methods developed, research engaged in, and technical papers presented—Membership held in other organizations—Central research augmented—Eight sections and four student chapters now.

By C. W. BENDIGO, Editor, TEXTILE WORLD

THE EXCELLENCE of the finishing division of the U. S. textile industry is due in no small measure to the American Association of Textile Chemists & Colorists, which this month celebrates its silver anniversary in Boston, the city in which it was founded. Through this organization, textile chemists and colorists have not only helped themselves but also have helped others and have displayed an admirable willingness to cooperate.

The test methods members have worked out and the association has endorsed are in themselves significant, but more dynamically significant than they are the technical papers presented by members and guests. Such dissemination of information has long been a mark of continuous earnestness and progress.

When Dr. Louis A. Olney, of Lowell Textile Institute, wrote in April 27, 1911, concerning the question of forming a group in this country along the lines of the British Society of Dyers & Colourists, he sowed the seed which ten years later brought forth the national association which in its first year grew to 400 members in four sections. It is significant that a technical paper (on "Differential Reduction of Vat Dye," by Wallace J. Murray) should be given at the inaugural meeting in Boston, Nov. 3, 1921.

DR. OLNEY. At that meeting, of course, Dr. Olney was the chairman of the organizing committee and was duly elected the association's first president and served in that capacity until Dec. 3, 1927. His influence during the

formative years and since has been one of the great forces in the association. In recognition of his services, in 1930 he was designated president emeritus and life member of the council, and in 1944 he was made the first recipient of the Olney medal which is the award of the AATCC for outstanding achievements and contributions in textile chemistry. (This past January, Dr. Milton Harris was the second recipient.)

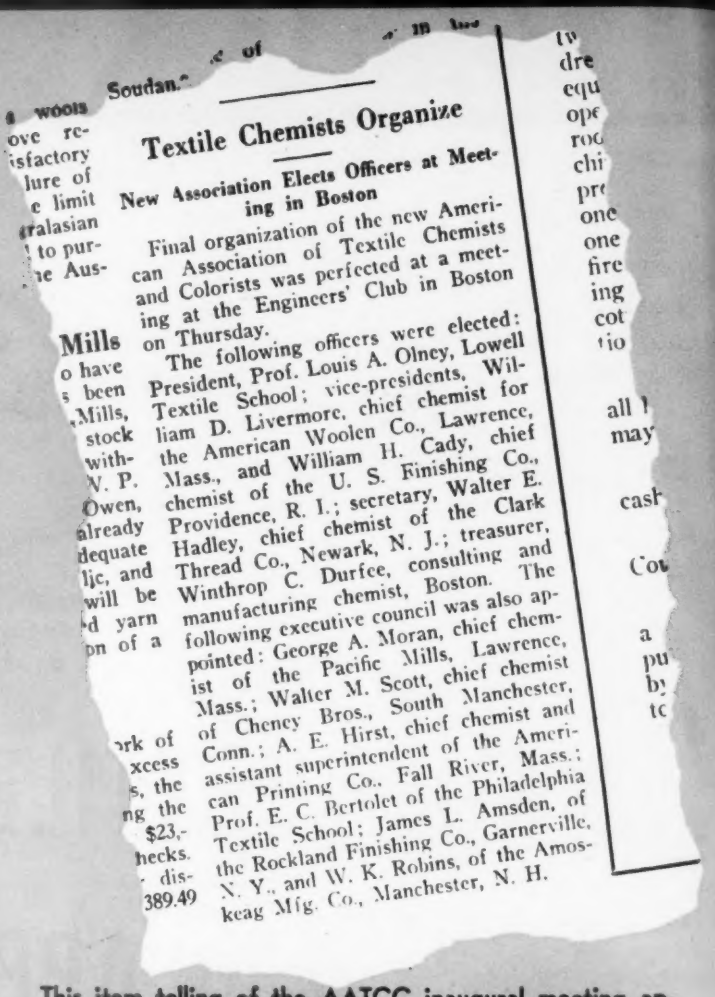
The association was just a year old when it recognized the importance of textile schools in training future textile chemists and colorists. In 1922, it encouraged the formation of a junior section at the Lowell Textile Institute. Since then three other junior sections have been formed.

The association was not yet seven years old when it became actively interested in a central research and technical bureau. The United States Institute for Textile Research and, eventually, the Textile Research Institute resulted— both separate organizations from the AATCC. But the urge for a central research unit continued; it reached a high point a year ago when Dr. Harold W. Stiegler was appointed the association's first full-time director of research to further the work of the committee on research.

The executive committee on research, which has under it a huge research committee and almost a score of sub-committees, directs some of the most vital work of the association. For the past year or so, the sub-committee on flammability of consumer textiles has been given nation-wide attention for its work in setting up a reasonable test method for measuring flammability to be specified in both state and federal legislation.

WORK WITH OTHERS. The wide scope included in the field of textile chemistry and coloring can scarcely be embraced directly by one organization. Accordingly, the AATCC maintains membership in the Inter-Society Color Council (which AATCC helped form), and in the American Standards Association. In addition, it cooperates with the Textile Research Institute, the British Society of Dyers & Colourists, the American Society for Testing Materials, the U. S. Dept. of Agriculture, the Bureau of Standards, and others.

All during the war, the association cooperated with the Armed Forces and other federal agencies. The association received a letter of thanks from Brig. Gen. George F. Doriot for its assistance to the Quartermaster General.



Textile Chemists Organize

New Association Elects Officers at Meeting in Boston

Final organization of the new American Association of Textile Chemists and Colorists was perfected at a meeting at the Engineers' Club in Boston on Thursday.

The following officers were elected: President, Prof. Louis A. Olney, Lowell Textile School; vice-presidents, William D. Livermore, chief chemist for the American Woolen Co., Lawrence, Mass., and William H. Cady, chief chemist of the U. S. Finishing Co., Providence, R. I.; secretary, Walter E. Hadley, chief chemist of the Clark Thread Co., Newark, N. J.; treasurer, Winthrop C. Durfee, consulting and manufacturing chemist, Boston. The following executive council was also appointed: George A. Moran, chief chemist of the Pacific Mills, Lawrence, Mass.; Walter M. Scott, chief chemist of Cheney Bros., South Manchester, Conn.; A. E. Hirst, chief chemist and assistant superintendent of the American Printing Co., Fall River, Mass.; Prof. E. C. Bertolet of the Philadelphia Textile School; James L. Amsden, of the Rockland Finishing Co., Garnerville, N. Y., and W. K. Robins, of the Amoskeag Mfg. Co., Manchester, N. H.

This item telling of the AATCC inaugural meeting appeared in the Nov. 5, 1921, issue of TEXTILE WORLD.

Personnel at AATCC Organization Meeting

Arthur J. Anderson
James L. Amsden
John F. Bannan
Elmer C. Bertolet
H. S. Busby
Hugh Christisen
Alan A. Claflin
Philip S. Clarkson
John H. Culver
Frederick Dannerth
Winthrop C. Durfee
Paul F. Estey
Charles A. Everett
Thomas P. Flynn
Oscar R. Flynn
Allan A. Fuller
Frank W. Gainey
Earle F. Gooding
Henry D. Grimes
Walter E. Hadley
Everett H. Hinckley
Amos K. Hobby
Frank C. Holden
Russell W. Hook
A. P. Howes
A. E. Jury
Elvin H. Killheffer
E. H. Klipstein
Xavier Lehman
L. C. Lewis
Giles Low
J. Merritt Matthews
Edward Mayer
Louis J. Matos
T. H. McCook
Herbert C. Merrill
Karl R. Moore
W. R. Moorhouse
George A. Moran
C. A. Mace
Louis A. Olney
Donald S. Perlman
Walker F. Prescott
Arthur H. Sampson
Joseph W. Sawyer
Walter M. Scott
Charles F. Schaumann
Edward C. M. Schroeder
Henry J. Shackleton
Norris R. Shreve
Verity J. Smith
W. J. Stainton
Charles H. Stott
Joseph L. Wade
DaCosta L. Ward
W. H. Watkins
Frederick A. Whitney
W. S. Williams
W. H. Wingate
Douglas G. Woolf

Following a Boston meeting of a few outstanding textile chemists, the above group met in New York on Sept. 13, 1921, to take definite preliminary steps to form an association. The AATCC inaugural meeting was subsequently held in Boston on Nov. 3.

AATCC SECTIONS

Section	Territory	Approval	Inaugural
Rhode Island	R. I.; Bristol Co., Mass.; Conn. east of Connecticut River	Nov. 18, 1921	Dec. 30, 1921
Northern New England	Me., N. H., Vt., Mass. except Bristol Co.	Dec. 9, 1921	Mar. 4, 1922
New York	N. Y., Conn. west of river, N. J. north of line east of Trenton	Jan. 18, 1922	Feb. 3, 1922
Philadelphia	Pa., N. J. south of line, Del., Md., D. C.	June 9, 1922	Nov. 10, 1922
Piedmont	Va., N. C., S. C., vicinity of Augusta, Ga.	Sept. 26, 1924[1]	Oct. 23, 1924
South Central	Tenn., Ala. and Ga. above 34° 30[1]	Sept. 26, 1924[1]	Oct. 23, 1924
Mid-West	O., Ind., Ill., Mich., Wis., Minn., Ia., Ky., Mo.	Mar. 8, 1929	Mar. 16, 1929
Southeastern	Ala. and Ga. below 34° 30[1], Fla., Miss.	Oct. 16, 1930[2]	June 20, 1931

[1] *Originally part of Southern Section.* [2] *In original meeting held before formal approval*

Student Chapters	Lowell Textile Institute North Carolina State College	Philadelphia Textile Institute New Bedford Textile School

The territories covered by the various sections as shown were determined by a special committee set up by the AATCC Council May 6, 1932.

AATCC **RESEARCH** Sub-Committees

Ageing of Textiles
[1]Wash Fastness
Fastness to Light
Chemical Analysis and Testing
Water Resistance of Fabrics
Color
Determining Finishing Materials
Chemical Technology of Wool
Evaluation of Durable Finishes
Resistance to Insect Pests
Transference of Color
Dimensional Changes
Mildewproofing
[2]Fire Resistance
[3]Detergency
Atmospheric Fading of Acetate

[1] *Knitted section is included.* [2] *Divided into general fireproofing and consumer flameproofing.* [3] *General, wool, and cotton groups.*

The executive committee on research, a standing committee under AATCC by-laws, is responsible for the general research policy and program. It operates through a research committee to the sub-committees listed above.

Official and Tentative **AATCC TEST METHODS**

Colorfastness Tests

Acids and alkalies, all fabrics
[1]Chlorine, cotton and linen
Carbonizing, wool
Crocking, all fabrics
Degumming, silk
Dry cleaning
Fulling, wool
Gas fading of acetate
[1]Laundering and washing, cotton and linen
[1]Laundering and washing, manufactured (synthetic) organic textiles
[1]Laundering and washing, silk
Laundering and washing, wool
Light, all fibers, yarns, and fabrics
Peroxide bleaching, silk
Perspiration, all yarns and fabrics
[1]Mill washing, silk
Mill washing and scouring, wool
Sea water, all yarns and fabrics
Stoving, all yarns

[1] *Uses AATCC Launder-Ometer.*

Water-Resistance Tests

Hydrostatic pressure
Immersion
Impact
Spray rating

Wetting and Rewetting Tests

Rewetting (comparison)
Wetting agents, general
Wetting agents in mercerizing liquor (comparison)
Wetability of yarns and threads

Miscellaneous Tests

Accelerated Ageing
Fiber identification
Insect-pest compound evaluation
Pest deterrent evaluation
Shrinkage of cotton and linen (also fabrics from other fibers)

One of the most valuable contributions of the AATCC to the textile industry has been its work on setting up test methods.

BLEACHING Speeded Up From Days

HIGHLIGHTS: Bleach house of early twenties called criminally wasteful by today's standards—Acid found cheaper than enzyme —Closer technical control and better machinery credited with great increase in speed and better work—Kier pilers save one boil, but continuous systems can eliminate kiers.

By KENNETH H. BARNARD

TWENTY-FIVE YEARS AGO the first radio stations were being established in New York City, an airplane flight was an adventure not just another trip, and the American Association of Textile Chemists & Colorists had just been organized in Boston. It so happened at that time that the world's largest print works had recently completed a new bleach house with 70-odd 5-ton kiers capable of handling up to 5,000,000 yd. per week of medium to light-weight cotton cloth. At that time no expense or talent had been spared to make it efficient, up-to-date and modern, so let's see how a "modern" bleach house operated 25 years ago.

The cloth was sewed end to end and stamped with its style and lot number in the singe room and then run over one of 12 different singers, most of which were the usual type of gas flame, but three of which were plate singers, heavy cast-copper curved plates heated red hot and over which the cloth was drawn at roughly 100 yd. per min. Sparks were extinguished by running through a mangle containing malt solution, and then the warm wet cloth was piled in gray pits to give the enzyme a chance to solubilize the starch warp size.

The kiers were in two groups, as all the cloth was given two boils. Soda ash and lime had recently been replaced (around 1920) with caustic soda bought in tank cars at approximately 50% solids, although the lime and soda-ash boil was still regarded as giving a more permanent white to white goods such as sheets and pillowcases.

The kiers were all piled by hand, mostly by boys who served their apprenticeships as future bleach-house workers by directing the cloth from one part of the kier to another with a stick. The job was hot, monotonous, and occasionally dangerous, as a boy might be forgotten while out of sight and sound so long inside a kier.

The kiers were all boiled at night, as it took the day crew at least four hours to fill or empty one of them; and running the cloth in and out from pits to kiers and back again was the day crew's job. In fact, the bleach house required some 80 to 90 men and boys to operate it.

From the kiers, the cloth went through the chemic saturator, a heavy mangle, and then into the white pits, where it was also hand piled for another over-night stay. The cloth was finally washed, antichlored with sodium bisulphite, rinsed again into the finish pits from which it was drawn, opened to full width from the rope state—often by hand—and finally dried on the cans in the white room.

MERCERIZING. Mercerizing was a bleach-house operation and was done both on gray cloth before kier boiling, if mercerized to aid dyestuff absorption, or on white cloth mercerized on the bleached cloth, if luster was the main objective. The caustic for the latter purpose was held at 30% solids, or better; and, as a modern touch, refrigeration units were installed to keep the caustic down near 40° F.

A three-bowl mangle was used, with four machines enough to handle all production, some 500,000 yd. a week. Heavy water sprays covered the caustic-treated cloth on the mercerizing frames with sheets of water, and the weak caustic washed out was run into the sewer. A continuous sour neutralized any caustic which the water failed to wash out, and there was plenty; finally more water was used at the end to rinse out the acid.

Such was the "modern" bleach house of the early twenties which handled a large yardage per week, but which took about a week for any one yard to proceed from the singe room to the white room and which by present day standards was criminally wasteful of manpower, chemicals, steam, and time.

TODAY'S BLEACHERY. The bleach house of today differs from its predecessor of 25 years ago in two respects: closer control technically and better machinery.

Closer control in the use of chemicals has been achieved by automatic devices and by the generous use of meters for measuring the chemicals and steam used. Savings cannot be made until the amount of materials used is accurately known. For example, in removing warp size, it is cheaper and faster to use ½% of sulphuric acid rather than 1% of an enzyme. The acid is circulated from each sour box to a central feed tank, where its strength is automatically held by a Leeds & Northrup conductivity meter set to open up a supply of fresh, strong acid as the extra water from the washers dilutes the sour solution.

Caustic formerly wasted from the mercerizers as a very dilute solution is built up to kier-boiling strength by arranging the washing on the mercerizers in a counter-current way, cutting down the supply of fresh water at the discharge end of the mercerizer to a minimum, and using it over and over again in each of the sprays in the section, which are separated from one another by dams and are connected to separate circulating pumps.

The result is that the recovered caustic is strong enough to use directly in the kiers without evaporation; and if the yardage mercerized does not exceed 10% of the yardage boiled, enough recovered caustic will be available to boil all the cloth.

In order to keep the caustic at a definite strength, automatic conductivity controls as used for acid are used again here, so that its strength is always exactly the same as fed into the kier; and the only measurement needed is its amount. Furthermore, the strong caustic used for mercerizing is automatically controlled for strength, this time by an electrically operated specific-gravity device as the conductivity (electrical) of strong caustic does not vary enough for accurate control at mercerizing strengths.

Steam meters show the amount of steam used by each kier or group of kiers, as the cost of steam generally exceeds that of the chemicals used and therefore requires careful checking to keep down costs. The automatic controls not only replace men who would be needed for constant titrations but also are more reliable and leave a con-

to Hours

tinuous record of their performance through charts. Automatic control of the bleaching solutions used is possible through automatic titrating devices, but is not so easy to achieve nor are the amounts of chemicals so large either. Sulphur dioxide in cylinders has replaced other forms of anti-chlors in the final operations before drying.

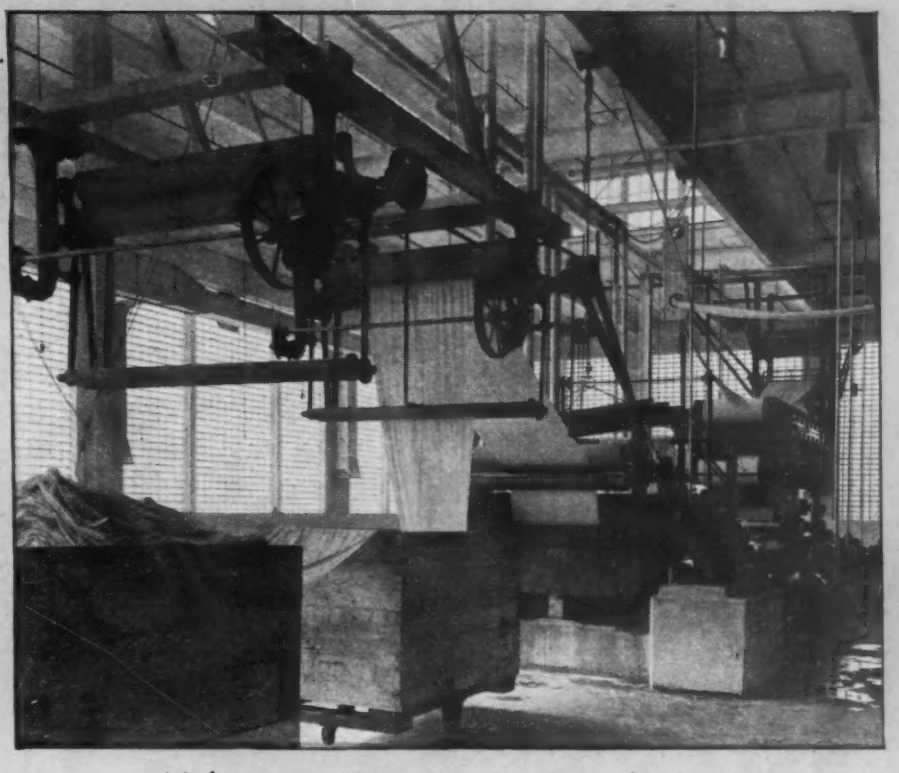
AUTOMATIC PILERS. The use of labor-saving machinery has proceeded apace in the past 25 years. First was the introduction of automatic kier pilers, which not only saved a boy for each kier filled but also did the job of packing so much more uniformly that it was found that one single boil in a well-packed kier was equal to two boils in a hand-piled one.

Thus the labor, time, and chemicals used for the second kier boil were eliminated at a great saving in costs of boiling off. Bin pilers for the pits, both gray and finished, were installed; each one replaced a man and paid for itself in less than a year's operation. These, again, are automatic in that once started they require little or no attention except to start and stop them; accordingly, the bleach house gang could be cut to about one fourth the number of men used in 1921. Furthermore, cloth speeds could be raised to approach 200 yd. per min. to help reduce costs and get the goods through more quickly.

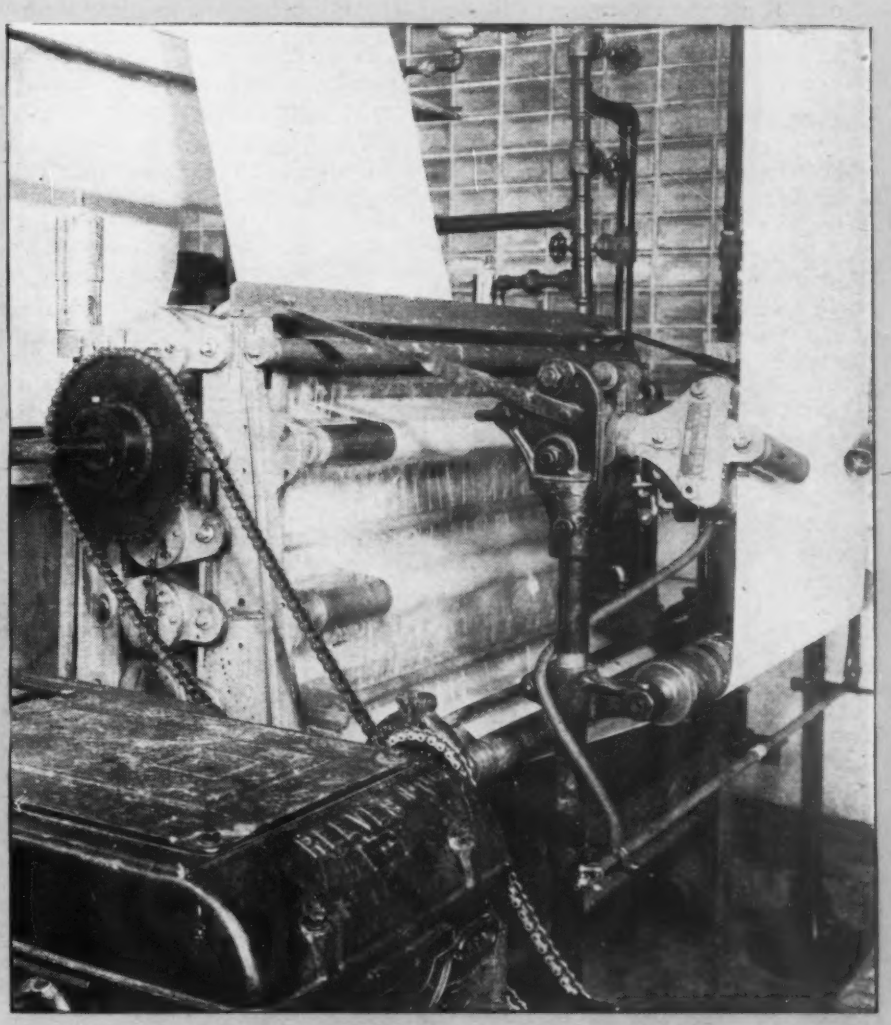
For really fast work on cotton bleaching, the kier had to be eliminated; and this was done in the so-called continuous boil-offs (such as those of Du Pont or Becco) using peroxide 100 volume, or the continuous-steam process advocated by Mathieson. In general, these continuous methods consist of a stainless steel tube or chute through which the cloth, saturated with the chemicals, passed—often a sort of J-box, steam heated, with steam sometimes introduced directly. The cloth continuously moves forward through the machine and is subjected to the action of somewhat more concentrated caustic for a far shorter time. With peroxide, bleaching is accomplished at the same time as boiling off; and goods are finished in three hours instead of three days.

CHANGES IN CHEMICALS. Over the course of the years, there has been a change to some extent in the chemicals used in bleaching, although this

(*Continued on page 208*)



Modern mercerizing units not only use less caustic but have provisions for recovering it.



This vertical washer is one of four used in new continuous peroxide-bleaching range.

Entire DYESTUFF INDUSTRY Developed Since World War I

HIGHLIGHTS: Indigo and sulphur black first colors offered —Anthraquinone vats followed in 1919—Decade 1920 to 1930 most significant—Dyestuff manufacturers developed methods and machines.

By A. G. BRUNIER

IT IS WELL KNOWN that Europe held a monopoly on the manufacture of dyes until the outbreak of the First World War. Although there were a number of plants operating in the United States producing dyes, all of these relied upon foreign sources for their raw materials and intermediates and actually only coupled these to form the finished product. Consequently, the American industry showed very little development until European sources of supply were suddenly cut off. The critical shortage of dyes at that time revealed this weakness in the industrial set-up of the nation. Many will remember the dearth of color, the inflated prices, the various nondescript dyestuffs eagerly sought by consuming industries, and the blockade-running submarine "Deutschland" carrying a cargo of a million dollars worth of dyes. Small plants sprang up overnight to manufacture whatever color they could produce, and no such thing as technical or chemical control existed. The possibilities of establishing a sound industry on a substantial, well-grounded basis attracted several established concerns in the chemical field. Their background of knowledge and experience aided materially in overcoming many manufacturing problems, but the lack of actual information pertaining to the production of dyes still proved a tremendous handicap.

The urgent need for dyes produced results. Indigo and sulphur black were the first colors offered by one company on a commercial basis. These led to others, and since the demand for fast vat dyes was of paramount importance, research was centered upon the development of these exceptionally durable coloring agents. It was in 1919 that the first American production of the anthraquinone vat colors occurred. These proved to be the forerunners of a diversified range of vat dyes suitable for application to cotton, linen, viscose-process rayon. The establishment of an anthraquinone-dyestuff industry was regarded as an outstanding accomplishment and enabled the color-consuming industries to produce fast dyed or printed fabrics that were the equal of any previously made from imported dyes.

Until about 1926 many of the dye-producing plants were operating at a loss—the industry was going through a stage of many changes—large sums of money were spent for research; and, as a result, yields, chemical manufacturing equipment, and operating techniques were improved. This all resulted in greater economies, and prices of intermediates and finished products continued to drop. (The period between 1920 and 1930 was one of the most constructive in the history of the American dyestuff industry.) New products appeared on the production schedules in rapid succession, among them many new fast-to-light direct azo colors, complete lines of developed, sulphur, and acid colors and, of special significance, the thio-indigoid type of vat colors.

Not only were costs of many of the products lowered because of volume production, but increased technical knowledge acquired through experience brought about significant improvements in the quality of the dyestuffs, which is equal to and in many cases superior to the imported prod-

Small experimental jig (left) and sample package-dyeing machines are used to develop dyes and procedures.

uct. This is particularly true of the vat-color pastes and powders used for dyeing by the pad-jig method and for printing. High-speed, continuous methods of color application and the production of fine-quality printed goods were materially aided through the chemically controlled physical characteristics of the colors themselves. The use of assistants, such as diethylene glycol and di- and tri-ethanolamine, in the printing pastes for vat colors has further improved their printing qualities.

ACETATE DYES. The introduction of acetate rayon provided new problems for the dyer. None of the existing colors could be applied satisfactorily to this fiber, and it became necessary to develop a new range of dyes. These are dispersible amino-anthraquinone derivatives and basic azo compounds which are soluble in the fiber itself and applied from a water dispersion with the aid of soap.

The technical personnel of the dyestuffs industry was extremely active in improving existing products and processes, but research continued; and in 1936, a distinctly new product was developed. It was a very brilliant blue pigment, copper phthalocyanine, and possessed exceptional fastness properties which made it largely resistant to most color-destroying influences. It found wide and ready acceptance in the printing-ink trade and was also adopted by other industries for use in paints, varnishes, lacquers, wallpaper, linoleum, roofing material, etc. A substantive form of the color was also introduced for cotton and rayon and is distinguished by its brilliancy of shade and fastness to light.

Stabilized azoic colors for printing opened a new avenue for the rapid application of this type of color by a simplified process. They are recommended for the production of brilliant shades, possessing satisfactory general fastness on cotton and viscose rayon.

The chromiferous or pre-metallized dyes also diminish the processing time normally required for the usual after-chroming methods of dyeing wool. They are azo dyes that contain chromium in the molecule, making additions to the dyebath unnecessary. Solubilized sulphur colors have also proved of value to the dyer because of their ease of handling.

These new developments in color are further attended by improvements in manufacture, increased fastness and a more versatile range in many of the existing groups. Non-dusting pigments for coloring papers are so completely dispersible that the solution is nearly colloidal. Colors for such utilitarian uses as hectograph carbons have been increased in intensity to produce large numbers of perfect impressions.

It should also be pointed out that certain dyestuff manufacturers were responsible for a number of improved application techniques covering the continuous dyeing of wool raw stock and wool piece goods with indigo, the pad-steam continuous dyeing process, the soda-ash booster process, which is a method for continuously applying vat colors under mildly alkaline conditions to protein and other alkali-sensitive fibers, the multi-lap continuous processing machine which enables the processing of delicate fabrics with minimum distortion, crushing, or chemical deterioration. The multi-lap machine extends the continuous dyeing of vat colors to woolens, spun rayons, and various combinations of animal, vegetable, and synthetic fibers.

Development of the organic chemicals industry was paralleled by the growth in chemical education. Many of the chemists, chemical engineers, and technicians trained during the past several decades have become leaders of the industry. The vital importance of the dyestuffs industry was further proved during World War II. The United States had at its command a complete, integrated, and self-sufficient organic chemical and dyestuffs industry supplying great quantities of vital materials essential to the war effort. Its importance to our national welfare and security was further emphasized through its contribution of highly trained chemical engineering and technical personnel to the many chemical, munitions, and powder plants necessary to carry on a global war.

The organic chemicals industry can also be considered responsible for many of the modern miracles of science and medicine and have both directly and indirectly contributed materially to the esthetic and physical well-being of the nation. In summation, we have today a firmly established integrated key industry, supplying vast quantities of dyes which serve the diverse color requirements of the textile, paper, leather, dry color, and other color-consuming industries.

SOCMA SILVER ANNIVERSARY

The Synthetic Organic Chemical Manufacturers Association, like the AATC, celebrates its 25th anniversary at its annual meeting this month. It was founded in Washington in October, 1921, by 36 companies who joined forces to protect the American chemical industry which grew up during the First World War, as supplies of German chemicals were shut off.

It is significant that within two months 29 additional chemical manufacturers had joined, and that the Tariff Act of 1922 protected the new industry, which protection was continued in the Tariff Act of 1930. Incidentally, Secretary of Commerce Herbert Hoover addressed the group as it organized

The association has had but three presidents. The first was Dr. Charles H. Herty, former editor of the journal of the American Chemical Society. The second, who served from 1927 to 1945 was Dr. August Merz, of Calco Chemical Div., American Cyanamid Co. The third, and current, president is Ralph E. Dorland, of The Dow Chemical Co. Charles A. Mace is the executive secretary.

The association cooperates with the Chemical Foundation (the chemical industry's counterpart of the Textile Foundation), and federal departments such as the Departments of State, Commerce, and Justice. At present there are 73 members in the SOCMA (15 of which are original charter members). They constitute a representative cross-section of whole synthetic organic chemical industry of the United States.

The aim of the association, in the words of Dr. Herty, is "To supply products of highest quality, in adequate quantities, and at reasonable prices."

DURABILITY Sought By Textile Finishers

HIGHLIGHTS: Important processes developed in past quarter-century include resin applications, softeners, and stiffness for variety of purposes—Durability generally somewhat less than for older processes, such as mercerizing—Several processes being used for shrinkproofing wool, controlling luster of rayons, and flameproofing.

By R. A. PINGREE

THE PROGRESS AND PROSPERITY of an industry can be measured to a large extent by the quality and quantity of its technological developments. This seems particularly so in the field of textile finishing, which has profited greatly by the many and varied developments in fabric treatment that have been born and utilized during the past 25 years. Probably these developments can not be considered of a revolutionary nature, in spite of much publicity to the contrary. Nevertheless, they are substantial and real.

The outstanding achievements in the finishing industry have been the discovery of treatments which are retained on the fabric throughout a great part of its natural life. The word "durable" is now commonly used to describe this class of finishing treatments. Paradoxical as it may seem, this qualifying term is used in preferance to the word "permanent" because these modern finishes do not stand up so well as some of the older processes. Mercer's process for treating cotton fabrics with caustic soda has been known for over 100 years, and Heberlein's treatment with sulphuric acid for over 25 years. Both of these treatments remain practically unimpaired throughout the life of the fabric. The superior fastness properties of these older processes as compared with the newer ones are readily understandable because they involve actual modification of the cellulose fiber while most of the modern processes consist of a deposition of an insoluble material on or within the fiber.

Today we have cotton and rayon fabrics which are as resistant to creasing as a high-grade worsted, and we have worsteds which are as resistant to shrinkage as a high-grade cotton fabric. There are spun rayons which resist creasing and dimensional distortion, filament rayon fabrics which resist slipping and fraying, spot-proof glazed-surface fabrics, water-repellent fabrics which can be laundered and dry cleaned, flame-resistant cottons and rayons which stand light laundering, rayon fabrics with the subdued luster of natural silk, and stiffening and softening treatments which are retained to some extent throughout the normal life of the fabric. These are the "durable" fabric finishes of today.

FORMALDEHYDE RESINS. Urea-formaldehyde condensates are used most generally for imparting crease resistance to cellulose fabrics, although they have recently been replaced to some extent by melamine-formaldehyde types. These treatments have proved very successful on spun rayon fabrics. When used at effective concentrations on cotton, they cause serious fiber embrittlement which results in poor tearing strength and abrasion resistance. For this reason, they have not been applied to cotton fabrics to any great extent.

Partially polymerized urea-formaldehyde resins have been used in large quantities for shrinkage control on all types of cellulosic fabrics. Melamine-formaldehyde resins are now also being used for this purpose. Although these treatments cause fiber embrittlement on cotton fabrics, they have been found quite suitable because the effective concentrations are sufficiently low to prevent serious damage.

The urea- and melamine-formaldehyde treatments, whether applied in monomeric or partially polymerized form, must be subjected to an additional heat treatment after drying on the fabric in order to complete the polymerization to the final insoluble resin. Acid salts are used as polymerization catalysts and during the heating operation the pH of the fabric approaches 3.5. If the fabric is allowed to remain in this condition, spontaneous depolymerization occurs and formaldehyde is slowly liberated. For this reason, it is advisable to neutralize this residual acidity by passing the goods through a solution of an alkaline detergent or wetting agent.

One of the most serious faults with urea- and melamine-formaldehyde treatments lies in their well-known chlorine retention properties. Recently, certain new nitrogen-free resinous materials have been offered which do not retain chlorine. These materials are still in the development stages, but they offer considerable promise as a solution for much of this trouble.

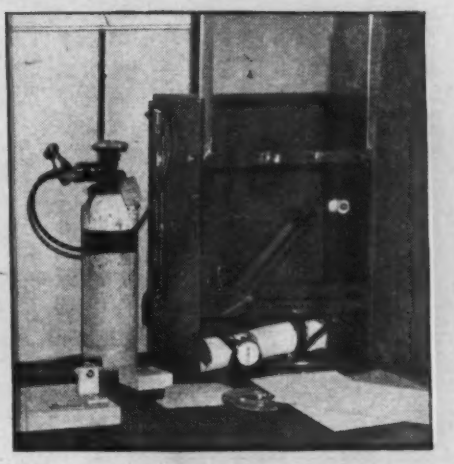
WOOL SHRINKAGE CONTROL. Shrinkage control on woolen and worsted fabrics has been a major field of activity within the past few years and several excellent processes are at present in use. Chlorination of wool to prevent shrinking has been known for several years; but until recently the process was considered too hazardous for commercial use. This method has been improved to the point where it can be applied with a minimum of control, and it is proving quite successful for certain applications. It does cause some fiber damage, however, with corresponding loss in wearing properties and causes considerable yellowing when applied to white fabrics.

For this same purpose melamine-formaldehyde condensates are being used to some extent. These products usually cause some embrittlement of the fiber; and for this reason, their use is limited to certain types of fabrics.

Emulsified resinous materials are also being used for controlling shrinkage of woolen fabrics. These treatments are very simple. The material is applied to the fabric in the dye kettle, the resin particles are substantive and are readily exhausted from the bath. The treated fabric is extracted and dried in the usual manner. The big advantages of this treatment are that no extra heating operation is necessary, the fiber is undamaged, and the fabric characteristics are unaltered.

For preventing yarn slippage and fraying of filament rayon fabrics, certain abietic-acid condensates and insoluble metal salts or oxides are being successfully used. The abietic-acid

Fire-, mildew-, and water-proofing compounds can be combined for unit application. Type mixed here adds considerable weight to fabrics but is quite suitable for duck.



Photograph at right shows apparatus developed by AATCC members for testing flammability of consumer textiles.

compounds are water soluble and are applied to the fabric from that medium. In general, they undergo no polymerization on the fabric and are therefore not resistant to laundering. Some of them, however, are quite insoluble in Stoddard solvents and will withstand dry cleaning quite well. Insoluble metallic salts or oxides are applied to the fabric in the form of aqueous suspensions or they may be precipitated from solution directly onto the fiber. This treatment also imparts a delustering effect and some of the finishes of this type are quite resistant to laundering.

RAYON LUSTER. For many years, attempts have been made to improve rayon fabrics to the point where they would more closely resemble natural silk. One of the most serious differences was the light reflectance characteristics of the two fibers. The subdued luster of natural silk has been duplicated quite well by applying white pigments, in one form or another, to rayon fabrics. This is accomplished in two ways. In some cases, the pigment is incorporated in the spinning dope and is retained within the fiber. The pigment is so firmly bonded that it is not removed to any appreciable extent by repeated laundering and dry-cleaning operations. On some fabrics, the pigment is applied to the woven cloth in the form of an aqueous suspension. These pigment suspensions usually contain softening and binding agents. Some of these treatments will withstand a reasonable amount of laundering. Zinc, zirconium, titanium, and antimony oxides are most commonly used for this purpose.

One of the most interesting developments of recent years is in the processing of washable glazed-chintz fabrics. Finishes of this type have been in great demand for dress goods, drapery, and upholstery fabrics. Until recently, the glazed-chintz finish was extremely fugitive and even a drop of water on the fabric would destroy the luster entirely. Glazed chintzes are now being processed which will withstand repeated launderings and dry cleanings without appreciable loss of surface luster. For this purpose, urea and melamine formaldehyde resins in combination with thickening and plasticizing agents are in common use. The resin solutions are applied to the fabric by the usual padding process. The goods are dried at a low temperature to prevent premature polymerization, are passed through a glazing calender, and are then cured and neutralized in the usual manner. Durable embossed effects may be produced by this same process.

SOFTENING AGENTS. Many types of substantive softening agents are now in use. Of these, the cation-active compounds are most common. These compounds are long-chain alkyl amides and quaternary ammonium salts. They exhaust quite well onto cellulose fabrics, and they adhere to the fiber so tenaciously that they are not removed by the normal laundering and dry cleaning processes.

Water insoluble resin emulsions have come into prominent use within the past few years for textile finishing. These products are prepared by emulsion polymerization of vinyl-type monomers. Polymers of vinyl acetate, vinyl chlor-acetate, methyl and butyl methacrylate, styrene, acrylic-acid esters, and butadiene co-polymers are being used. These materials impart body and firmness characteristics to fabrics. Most of these resins form colorless transparent films; and for this reason, they can be used on all types of fabrics without danger of masking the color or surface luster. They are finding an increasingly wide field of use in spite of their relatively poor durability. Their main failing is that the finish is removed to quite some extent in the first laundering operation. Successive launderings, however,

(*Continued on page 210*)

Change Has Been Gradual In TEXTILE PRINTING

HIGHLIGHTS: Fastness and appearance have been greatly improved—Many new thickeners now available—Blotch printing is trend in rayons and cottons—Few developments in the small quantities of silk and wool being printed.

By R. W. JACOBY

IN ORDER TO REALIZE the extent of the developments which have occurred during the past 25 years in textile printing, one should first obtain a picture of conditions as they existed a quarter of a century ago.

Then, textiles were made largely from three fibers: cotton, wool, or silk, with cotton comprising most of the total volume. Cotton fabrics ranged from the coarser grades to many fine types which no longer exist. In printing they were divided into three classifications: shirtings, dress goods, and draperies.

For shirtings, vat-color printing had been pretty well developed and the major portion were printed with vat colors, although a considerable yardage was printed with pigments. This latter was done by incorporating the pigment into a starch paste to which was added blood albumen. After printing and drying, the goods were passed through an ager, in the front of which was a steam-heated plate onto which formaldehyde solution was allowed to drip. This filled the ager with formaldehyde fumes which coagulated the albumen.

Most dress goods were printed with basic colors in both application and discharge work. Although vat colors were being used on shirtings, there was very little interest in their use on dress goods. No one seemed concerned about fastness, and suggestions to use vat colors on this line of work met much opposition. In fact, this opposition was so strong that those in the producing end felt that the trade wanted to put out goods which would not hold up in service, so as to increase sales.

Draperies generally were printed with basic colors, chrome colors, or mordanted extracts. The thickeners used for print pastes were starches, modified starches, British gum, and some natural gums such as tragacanth.

GRADUAL CHANGE. The transition from the conditions described to those now existing came about gradually due to many factors, among which were competition, consumer demand, and the rapid increase in the number of technical men engaged by the industry.

As time went along, vat colors began to be used in increasing amounts on dress goods, both in application and discharge printing. In discharge printing, the grounds were dyed with direct or developed colors, then printed with vat colors. When some of the larger distributors installed laboratories and began testing merchandise, they complained regarding the varying degrees of fastness of the colors in the same print; that is, the printed vat colors were much faster than the direct or developed dyed ground. This led to consideration of blotch printing the ground instead of dyeing it. However, this meant excessive costs, particularly in the darker ground shades. This objection was overcome with the introduction of salts colors printed on naphthol-prepared grounds, after which discharge printing on cotton rapidly decreased in volume. As the trade became familiar with, and attracted to, the bright coupled naphthol shades, it wanted them in other patterns which would not ordinarily be prepared with naphthol, and the rapidogen colors, with the accompanying indigosol colors, met this situation.

As vat colors came into increased use on dress goods, it was natural that their increased fastness properties would be desired on draperies, which was the case; and now they are used to a very large extent on this class of goods.

SILK AND WOOL. In silk printing 25 years ago, the colors used were mainly the acid and neutral-dyeing acid colors, direct colors, and basic colors. The thickeners generally were natural

Chrome plating of printing rolls and use of nylon bristles in furnisher brushes are two mechanical developments in printing.

gums such as tragacanth and karaya. While the volume of silk printing has shrunk to a minimum, the same general conditions prevail. One outstanding improvement has been the use of urea in the print pastes which enabled the plants to reduce the time of steaming. This use resulted in better white discharges and white grounds.

On printed wool, the history is much the same as on silks; but wool represent a minute fraction of the total yardage printed.

When rayons were introduced they came under the influence of both the silk printers and cotton printers. There was some tendency to follow the "high styling" of silks, which was aided by the development of the urea process whereby acid and direct colors were printed on rayon. In general, however, the procedure was to follow the methods used on high-grade cottons and print with vat colors. For colored ground effects, it is still usual to dye and discharge print as was done years ago on the finer grades of cotton. There has been a limited trend to blotch printing of rayons, which was accelerated recently when members of the Army Quartermaster teams brought back samples of blotch-printed rayons from Europe.

In reviewing the developments, other than mechanical, which have occurred during the past 25 years, they should be divided into two major headings: (1) color, and (2) fastness.

COLOR DEVELOPMENTS. Under color, there were the cooperative efforts of the dyestuff and chemical manufacturers, stylists, designers, and printers. The azoic colors gave a variety of bright shades. The printing properties of vat-color pastes were greatly improved. New print thickeners—like the alginates, soluble forms of cellulose, modified starches, and gums—gave transparent films or thickeners which washed out readily, so that the colors were not dulled.

In the matter of fastness properties, the prints of today are far superior to those of 25 years ago. For this, the credit must be widely spread. Perhaps the initial urge was dissatisfied customers. Their complaints came back through the distributors and converters to the producers. Regardless of whether it was fear of claims or pride in product, the net result was a gradual improvement in quality. Standard tests developed by various technical groups gave yard sticks for measurements. Consumer and distributor laboratories provided a constant check. Informative labelling carried the message to the trade. The "Nafal" tag (National Associations of Finishers and Launderers), the Pacific Mills' "Factag", similar labels of other producers, and more recently the "Crown Tested Plan" of the American Viscose Co. all helped in this direction. Advertising carried to the consumers by all parties involved, from the dyestuff manufacturer to the final distributor, helped the demand for better fastness properties.

The technical men in the producing end carried on an endless series of tests and checks. They had their goals and served as an intermediary between the dyestuff manufacturers and operating men in the plant to first determine just what degree of fastness could be obtained under certain conditions and then see that it was accomplished.

EFFECT OF FINISHES. As new finishes were introduced, it was found that many of them affected the fastness properties of some dyestuffs. This further complicated the situation; but, as usual, by study and selectivity it is being overcome.

Mention was made of pigment printing as carried on 25 years ago. Since then new pigments, better-dispersed old pigments, synthetic-binding materials, and many other improvements have resulted in pigment prints which bear no resemblance to their predecessors of the time when the AATCC was formed.

Probably the most impressive example of the progress of textile printing is to consider the printed fatigue uniforms, ponchos, and head-nets which our service men used under all conditions in all parts of the world, and which stood up satisfactorily.

MECHANICAL PROGRESS. With fewer print machines in operation a shorter number of hours, much greater yardage is produced. This large increase in output per print-machine-hour is due to many improvements including chromium plated printing rollers, roller bearings, better-running print colors and thickeners, washable blankets, longer runs, elimination of delays such as reversing rollers, improved drying equipment, etc. While there has been some increase in the actual operating speeds of print machines, it is felt that the mentioned items account for the greater portion of the increased output.

The colorist has available many new dyestuffs such as salts and bases, rapidogens, indigosols, and rapid fast colors, as well as better types of old dyestuffs. This gives him a wide range of coloring materials, which in conjunction with a much greater choice of thickeners, enables him to produce prints whose styling and beauty is far superior to those of older days.

From the three fibers encountered by the printer of 25 years ago, the number has grown to many more including viscose, acetate and cuprammonium rayon; Aralac, nylon, spun glass, etc.

In shirtings, the better ones of 25 years ago did have good fastness properties, so the improvement in this respect was not so great as in other lines, but the styling and execution of designs has developed to a point where beautiful patterns of excellent fastness are characteristic.

In dress goods, ordinary patterns of inferior fastness produced with basic colors have progressed to bright, elaborate designs of excellent fastness, printed with vat colors, rapidogen and indigosol colors, salts and bases on naphthol prepare, and pigments.

In draperies, change has been from goods of poor-to-fair light and wash fastness, printed with basic or chrome colors, to goods of excellent light and wash fastness printed with vats, rapidogens and indigosols, of very superior light fastness when printed with fast-to-light direct colors.

The achievements of the textile printing industry during the past 25 years have been such that all of those who have contributed to them may well be proud.

Printing of cloth for fatigue uniforms is credited with showing impressive example of progress. Example shown was developed early in the war.

AATCC Research Has Aided WOOL CHEMISTRY

HIGHLIGHTS: Speakman called pioneer in understanding wool chemistry as affected by processing—Synthetic detergents aided study of scouring—Importance of drying stage in carbonizing shown—Excellent microscope studies made—Wool shrinkage control holds great promise.

By N. D. MARIUS

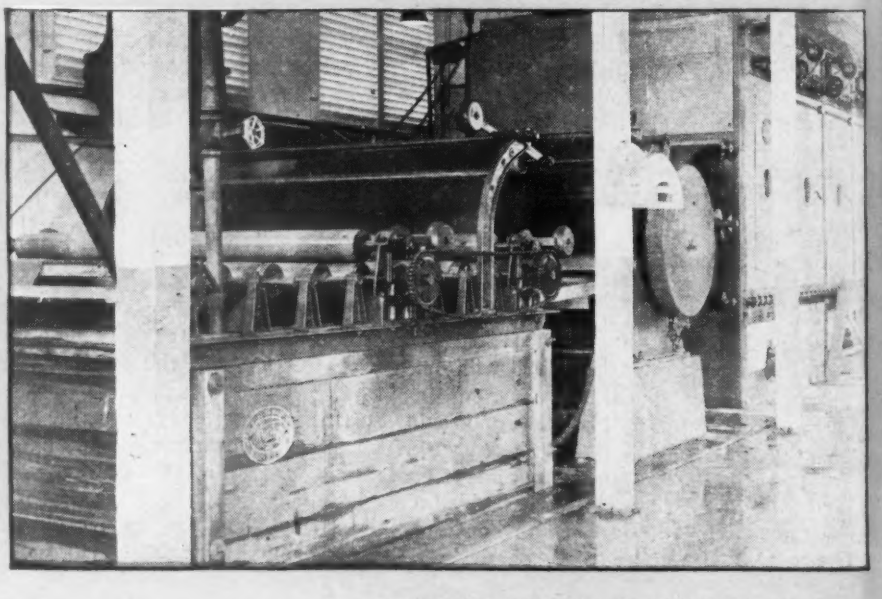
DURING THE PAST TWENTY-FIVE YEARS there has been a significant advance in fundamental knowledge of the chemistry of the wool fiber and the translation of this knowledge to an explanation and improvement of wool textile finishing and dyeing operations. Much of this knowledge has been acquired through research in England and the United States carried on by the British Research Association for the Woolen & Worsted Industry, the American Association of Textile Chemists & Colorists, the United States Institute for Textile Research, the Bureau of Standards of the United States Department of Commerce, and Textile Research Institute. Research in the above American research institutions has been materially aided by financial support from the Textile Foundation. Much research has also been carried out on the continent of Europe and also in the various industrial research laboratories throughout the world.

Twenty-five years ago very little was realized about the molecular and chemical structure of wool which distinctly limits the chemical and physical processes to which the wool fiber can be subjected without appreciable effect on its desirable properties. The pioneers in wool research were in Europe, particularly in England. They opened the way to an understanding of the existing industrial processing of the wool fiber. The wool industry had reached a remarkable degree of excellence as a result of the slow but sure trial and error methods over the years. The question for the chemist was why the process was carried out in a certain way, what were the chemical changes in the fiber, and what improvements or refinements could be introduced in the process.

During most of the decade from 1920 to 1930, work on the chemistry of the wool fiber was quite limited. During this period, analysis of processed wool showed changes in the total sulphur content; but an explanation of these changes was not clear until Astbury completed his X-ray studies of the wool fiber and Speakman contributed the chemical knowledge of the changes in the wool fiber during various mill operations. Sulphur in wool is present in the amino acid cystine which is part of the complex protein keratin, which makes up the entire wool fiber. Speakman can be truly considered the pioneer in opening the way to a clearer understanding of what chemical and physical changes take place in wool processing. His first researches were published about 1930, and since that time many more of his own researches and others have been completed to explain and improve wool processing. A brief examination of existing mill practice will show the advances that have been made by chemists in interpreting and improving present mill operations.

PHENOMENON OF SET. Speakman's classified researches explained the phenomenon of "temporary and permanent set" by the breaking of the cystine and salt linkages when a wool fiber is held under tension in boiling hot water or steam during various intervals of time, with the formation of other permanent linkages before the release of tension. Astbury's explanation of the folded keratin chain with a change of the stretched fiber from alpha-keratin to beta-keratin and Speakman's chemical researches have explained quite thoroughly to the chemist the very important operation of processing a woven fabric to equalize fiber strain and prevent it from cockling and lashing. Although in this age of desirable streamline operation crabbing and steaming seem to be a serious obstacle to mill planning strategists, it appears quite impossible to produce satisfactorily certain types of piece-dye fabrics without a crabbing operation.

Chemical and physical effects on the wool fiber by alkaline materials have been studied by Chapin in 1927, in the early thirties by Speakman and Harris, and for many of the following years by these men, co-workers, and others. Improved scouring practice has been obtained as a result of this work. It is now good practice to acidify cloth with a weak acid, like acetic, after any alkaline-scouring procedure. This practice will prevent streaky dyeing due to the difference in dye affinity



of alkaline-treated wool. Alkali-damaged wool dyes much more heavily than normal wool, due to chemical attack on the cross-linkage in the keratin molecule. This attack is brought about by a high pH and high temperatures. By neutralizing the alkali salt of wool with acetic acid, the uneven effect produced by the high temperatures of the crabbing and dyeing operations can be minimized.

SYNTHETIC DETERGENTS. The advent of the synthetic detergents which first appeared about 1930 from Germany—lauryl and oleyl alcohol sulphates—contributed considerably to a closer chemically controlled scouring operation. Many other satisfactory chemical types followed; but the essential characteristic required for wool cloth scouring is a stability to weak acid, so that the usual soaping can be followed by a separate wash with the synthetic and then followed by the acid neutralization.

For increased production at a lower cost, continuous rope-scouring machines have displaced, where possible, the dolley washer with its cumbersome batch method. The use of the synthetic detergents and acid are particularly of value in this type of machine. It is impossible to wash out the alkali with the time and rinsing allotted to this machine, so that for safe dyeing practice, acetic acid should be provided to eliminate the alkaline salt of the wool.

In order to eliminate the disadvantages associated with the use of alkaline materials in cloth scouring, the Derby dry-cleaning machine was developed. It uses a solvent of slight inflammability, such as trichlorethylene or perchlorethylene, preferably the latter. This machine also removes paint stains associated with woolen fabrics made from worsted combing noils. Much research had been carried out in Australia and America for a satisfactory sheep-marking fluid that would result in considerable saving to the wool industry if used by the sheep ranchers. Progress in this educational program has been very slight however, so that tar removers are still a staple material in wool-fabric processing. The Derby machine has been a distinct contribution, not only for its advantages in eliminating the use of alkali and removing paint but also for its assistance in continuous processing of worsted and woolen fabrics.

Since 1930, the introduction of the phosphates has been of great assistance in the wet processing of wool textiles. The use of sodium hexametaphosphate, tetra pyrophosphate, etc. have minimized the effects of lime in pulled wool or hard water which formerly was the cause of much poorly dyed cloth.

CARBONIZING. The American Association of Textile Chemists & Colorists has contributed greatly to an understanding and improvement of wet-processing operations. Harris, as its Research Associate, in 1934, studied the system which consisted of wool, sulphuric acid, and water, while Ryberg and Derby studied the effects of carbonizing on the dyeing properties of wool. From this work, sulphuric acid carbonizing and other methods such as the aluminum chloride and hydrochloric acid gas methods are today much improved with better equipment. These investigators showed that the drying stage of carbonizing is the most important. The less moisture present in the baking, the less likely the wool is damaged. All other factors in the carbonizing operation have been very thoroughly studied, so that today there is no reason for the chemist not being able to identify carbonizing faults in processed wool fabrics.

Since Trotman's work in 1922 and Speakman's in 1928 in England on the chemical explanation of the wool-dyeing process, there have been innumerable contributions in the literature about wool dyeing. Many of these researches have been quite fundamental, but all have contributed considerably in improving the wool-dyeing operation. Speakman and Goodall in England; Harris, Steinhardt, and coworkers at the Bureau of Standards have contributed much to explain the theoretical aspects of wool dyeing.

Goodall made a distinct contribution to practical dyeing in 1938 in his research entitled "The Significance of Temperature in Wool Dyeing." To quote from his conclusions, "The actual dyeing process consists of three phases (a) below the critical sorption temperature, (b) between the critical sorption temperature and the critical dispersion temperature, and (c) above the critical dispersion temperature.

"Sorption and dye-in-fiber dispersion of a coarse type occur in (a) and (b) and must subsequently be corrected in (c) into the finer type of sorption and dispersion shown by dyeings completed at the boil. The coarse type of sorption occurring in (a) and (b) is shown to lead to unsatisfactory practical results as regards levelness, penetration, fastness to rubbing, brightness and fullness of shade." With the development of new wool dyes of superior fastness qualities by the chemical industry, Goodall's research was of considerable value in the application of these new, more complex colloidal dyes.

MICROSCOPE STUDIES. Mention should be made of the excellent work of Royer and Millson of the Calco Division of the American Cyanamid Co. on "Microscopic Observations of Wool Dyeing." This work was first published in 1939; and after many excellent contributions to the literature, these men are still continuing this work. By an excellent technique using ultraviolet light and fluorescent dyes, photographs of cross sections of the wool fibers during dyeing gave much information regarding rate of dyeing, fiber levelness, and equilibrium conditions in the dye bath.

They and their associates lately developed the Dyeometer, an adaptation of the General Electric Hardy Recording Spectrophotometer to assist in these studies. [Description appears on

AATCC, especially while Milton Harris was its research associate, contributed to the knowledge about carbonizing of wool, notably the importance of the drying stage *(left)*.

Publicity pictures *(right)* such as this by the Naugatuck Chemical Div. of the U. S. Rubber Co. are doing much to stimulate public demand for "shrink-proof" wool fabrics.

page 115.] In their investigations, relation is shown between the rate of exhaustion of the dyebath, ring formation of the dye on the outside of the fiber, and its distribution within the fibers.

The adaptation of the Hardy Spectrophotometer by Royer and Millson is only one of the many which have been adopted for this instrument by the color technician in the wool textile and related industries. This instrument has been a distinct contribution by the physicist to the color chemist. With it, he can reduce a color specification to quite an exact mathematical basis. Its use in color research, production, and specification is constantly increasing and will eventually displace many of the present less accurate methods of color evaluation.

The invention and introduction of stainless-steel and other nickel alloys has been of inestimable value to the wool division of the textile industry. Dyeing equipment is now made of stainless steel which is a great aid to the color chemist in the production of clearer pastel shades.

WOOL SCOURING. The Speakman and Harris studies on the reaction of wool with alkali have been of great value to the textile chemist in improving wool scouring. Speakman has very clearly explained the difference between "hot" top and aged top by the rupture of the cystine linkage by alkali and the removal of strain on the fiber.

The wool chemist has made a distinct contribution to the combing and spinning processes. Reference is made to the excellent publications of the National Association of Wool Manufacturers through its technical committee in 1937 and 1941 regarding alternatives for olive oil as a worsted lubricant. These comprehensive studies show that the worsted industry is no longer dependent on olive oil for combing and spinning and that a mineral oil of superior resistance to oxidation and suitable lubricating quality can be used. Other more recent developments are the self-scouring lubricants which are rapidly leaving the development stage and are being used on a large scale in many plants. The adoption of these newer wool lubricants in a large way is necessarily limited on account of various factors like price, possible corrosive effect on mill machinery, and the required method of application in a water emulsion, which is not in general use for applying oil to the wool stock. However, this is a most interesting development in wool-fiber lubrication and promises considerable advantages in the future with further research both by the textile and the oil chemists.

WASHABLE WOOL. For the past twenty-five years, much chemical research has been carried out in a study of the fulling or felting characteristics of wool. This property, though a very useful one when controlled in the manufacture of wool fabrics, presents a great disadvantage in using wool for the manufacture of garments which might be washed by the laundry or by the consumer. Chemists have been working on the problem for a number of years to modify the wool fiber to prevent fiber travel and accordingly stabilize wool garments to washing.

As a result of this research, patents have been obtained for practical processes of essentially four types. Three of these; namely, the chlorination, caustic, and enzyme methods, reduce fiber travel by damaging the outer layer of the wool fiber. The fourth type of process accomplishes the desired result by coating the outside of the fibers with a synthetic resin.

CHLORINATION. Wet processes of chlorination; that is, treating piece goods with an aqueous acid solution of a chlorine generating chemical, have been known for a great many years. As chlorine reacts with the cystine linkage in wool, it is not a uniform reaction if the fiber has been damaged by processes preliminary to chlorination, such as by alkali scouring or the weathering effect on the wool while on the sheep's back. Accordingly, a uniformly chlorinated fabric to give satisfactory dyeing results has been difficult to obtain. In addition, it is difficult to control the action of chlorine on wool in an exclusively water medium, as the

(*Continued on page 215*)

TABLE I—
Selected Patented Processes for Making Wool Non-shrinking

Name of Process	Patent	Type	Year
Dry Chlorine King & Galley	E. P. 417, 719	*Chlorination* Chlorine or Bromine gas	1934
Drisol (Hall)	E. P. 464, 503	*Chlorination* Sulfuryl chloride in petroleum solvent.	1935
Enzyme (Phillips and Middlebrook)	E. P. 513, 919	*Enzyme* Papain	1938
Reichert and Peakes	U. S. 2, 132, 345	*Chlorination* Tertiary-Butyl Hypochlorite	1938
Solvay	U. S. 2, 213, 399	*Chlorination* Nitrosyl chloride in petroleum solvent.	1939
Alkali (Freney, Lipson)	Australian	*Hydrolysis* Caustic in ethylated spirit.	1939
Resin	U. S. 2,329,622	Melamine Resin	1943
Lanaset (American Cyanamid)	Re: 22,566	Polymerized in fiber.	1944
Alkali Hall & Wood (Tootal Broadhurst Lee)	U. S. 2,367,273	*Hydrolysis* Caustic Butyl alcohol in petroleum solvent.	1945

Table II — Selected Bibliography for the Advance in the Chemistry of Wool and Wool Processing

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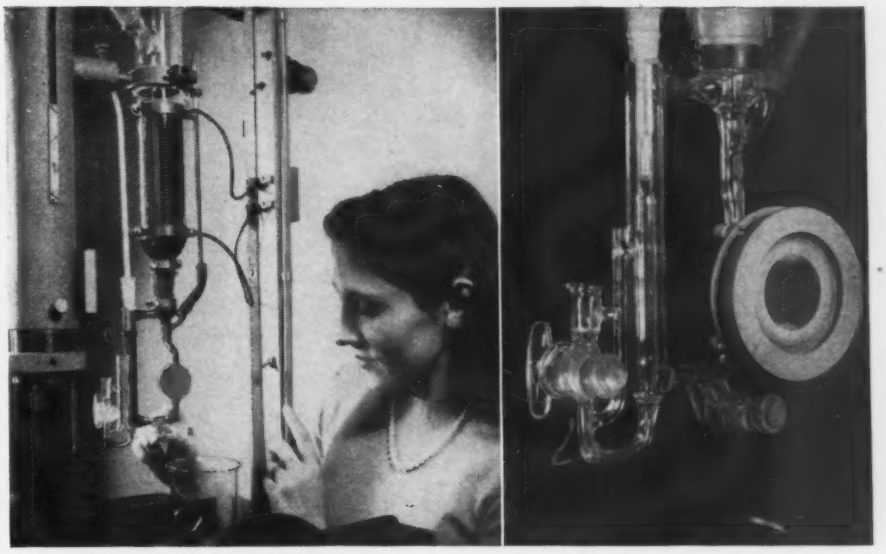
SPEAKMAN. Some Relationships Between the Constitution, Properties and Uses of Wool, Tex. Jour. of Australia, 20, 395, 1945.

DYEOMETER Measures Rate Dye Leaves Bath

HIGHLIGHTS: *Continuous measurement can be made throughout experimental dyeing—Special cell can handle dark or light solution—Modified spectrophotometer used for recording—Variation in fibers as well as in dyes can be studied.*



The round cell above the operator's right hand is inserted into an automatic recording spectrophotometer to measure how color leaves the dyebath. At the right is a newly developed cell which, by means of various shims, can be adjusted in thickness. Coil of wire around glass tube (in which dyeing takes place) holds temperature of dyebath constant.

CHANGES IN A DYEBATH during dyeing can be continuously recorded photometrically in the Dyeometer, a new apparatus developed in the research department of Calco Chemical Div. of American Cyanamid Co.

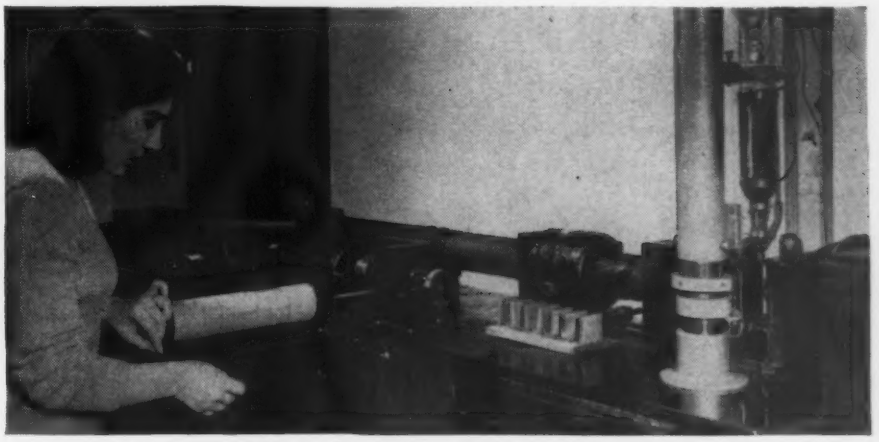
Normally, measurements of dyebaths have been made by taking samples of the dye liquor from time to time; but, such measurements could easily miss changes which occur quickly and might misinterpret changes which are not regular or uniform. With the new device, the liquor of sample dyeings can be studied throughout the dyeing range; and with an automatic recording spectrophotometer, the change taking place in a particular portion of the spectrum can be isolated. If the change is rapid, it may be followed by a special recording device.

The apparatus consists mainly of a tube in which the dyeing takes place; means for keeping temperature, volume, circulation, and stirring constant; and a cell which can be mounted into the system of the special recording spectrophotometer.

An adjustable cell has been developed, so that a thin section of a dark solution or a thick section of a light solution, as needed, can be studied. So far, the apparatus has found use both in studying effect of various dye baths and effect of various fibers. It has been used to measure reduction rate of vat dyes, rate of chromation of dyes, effect of dyeing conditions on the bath, formation of dyes, and other reactions. From recordings, dye-exhaustion curves can be plotted.

Much of the work on the Dyeometer, started before the war, is continuing on it by R. H. Kienle, G. L. Royer, and H. R. McCleary.

Sample of cloth to be dyed and studied is being inserted here by operator, Mrs. Estelle F. Eldridge, at the Calco research department laboratory.



Recording of dyebath exhaustion is measured continuously by the spectrophotometer. Apparatus to right of recording roll controls the rate at which the roll turns to coordinate recording with rate of change taking place in the dyebath.

Fig. 1. Slightly dirty reflectors can be cleaned by wiping with a damp cloth, but removal of hardened dirt and lint requires efficient cleaning agent.

Getting The Most From FLUORESCENT LIGHTING

HIGHLIGHTS: *Light losses can be minimized by careful maintenance—Regularly scheduled cleaning, inspections, and light-meter tests can maintain fluorescent system at peak efficiency—Most fixtures are designed to be easy to clean—Employment of outside electrical-service organization to do all or part of maintenance work is frequently advantageous to mill.*

By SAMUEL H. EATON
Lighting Engineer, Sylvania Electric Products Inc.

MOST MILL OWNERS realize that fluorescent lighting is the most efficient artificial illumination system available today, but too often these same owners fail to get full value from their fluorescent installations because they neglect to provide for regular and systematic maintenance.

Like any artificial-lighting system, fluorescent lamps and fixtures are subjected to a number of influences which reduce the clean, high-level illumination initially provided by this light source. Reductions of from 10 to 20% are inherent in any installation due to normal efficiency decreases over the period of lamp life; but light losses resulting from dirty fixtures, dusty walls and ceilings, and over-age lamps can be minimized by careful maintenance.

RULES TO BE FOLLOWED. In order to maintain a fluorescent system at its maximum effectiveness, certain specific rules should be followed. First of all, the walls, ceilings, and machinery should be painted in light colors so they will reflect a high percentage of light back into the factory area; and these light colors and reflectivity should be maintained by periodic washing or repainting. Lamps and fixtures should be cleaned regularly and checked for dead lamps; a supply of extra lamps and starter switches should be kept on hand; voltage should be maintained at proper level; and lighting intensities should be checked frequently with a light meter.

Frequency of cleaning is, of course, dependent on the dust and dirt in the atmosphere. Light losses will be great-

All photos courtesy Sylvania Electric Products Co.

Fig. 2. Lamps, as well as reflectors, should be cleaned periodically. Most fixtures allow easy access for cleaning since they are designed to be serviced without use of tools.

est where mill processes cause excessive lint or vaporizing of lubricating oils. In a survey of one industrial fluorescent installation, it was found that the wrong color of paint, plus dirt on the walls, decreased ultimate light output 11%, while accumulated dirt and dust on the lamps and reflectors caused an additional 27% loss. This is not an extreme case, but these factors are important because dust and dirt are always at work to the disadvantage of good lighting; and where they are not controlled by proper planning and a regular schedule of cleaning and maintenance, they effect substantial reduction in the amount of light distributed over working areas.

Accumulations of dirt on the lamps and fixtures are insidious and cannot be measured by the eye. The best method for determining cleaning schedules is with a foot-candle meter. The difference in readings before and after cleaning is the light loss due to dirt accumulation, and this test period may be used as a guide for future cleaning rates. By rule of thumb, when the fixtures provide one-quarter to one-third less light than the designed output, it is time for application of soap and water.

The cleaning agent to be used depends on the type of reflecting surface. Reflectors which are only slightly dirty can be rubbed with a damp cloth; but to remove hardened dirt and lint from a porcelain-enamel surface, an efficient and concentrated "soapless" soap will do a thorough job with a minimum amount of effort and will leave the surface clean and sparkling. Synthetic-enamel surfaces, however, require a briskly applied green-soap solution. On an aluminum reflector, the solution must be as neutral as possible, since even mild alkalinity or acidity will destroy the reflectivity of the metal finish. A green-soap solution or one of the special wax or wax-emulsion cleaners which have been specifically developed for cleaning aluminum are recommended.

CARE OF LAMPS. Most industrial fluorescent fixtures make cleaning an easy process since they are designed to be serviced without the use of tools or removal of loose parts or fasteners. Louvers usually are hinged to swing back out of the way so that the lamps, which should always be removed before cleaning reflectors, can be taken out by a simple half turn. When the lamps are out, they should be wiped clean of dirt and examined for darkening and discoloration. Although tube ends normally begin to darken toward the end of a fluorescent lamp's life (similar to the blackening of an incondescent bulb), abnormal darkening of a new lamp shortly after it has been installed may indicate that burning conditions are wrong; in such cases an electrician should check the wiring and auxiliaries of the fixture.

Dead lamps should be removed immediately; because if a failed or deactivated lamp is left in a fixture, the fluorescent starter will continually attempt to start the lamp. Ordinarily, this effort will not only ruin the starter but also will overheat the ballast, causing high wattage losses. The best procedure is to install push-button type starters with definite "off" or "cut-out" periods under deactivated-lamp operation.

HELP FROM OUTSIDE. These, then, are the prime causes and easy remedies of fluorescent-light loss. Many mills, however, have neither technically qualified personnel nor sufficient numbers of maintenance men to follow such a regular plan, and consequently welcome the services of an outside organization or serviceman equipped to take over the job.

There are many reasons why it is feasible to employ such a service. For one thing, the contractor or electrician is in touch with the fluorescent manufacturers and is familiar with the development and applications of all fluorescent-lighting products. As an established electrical consultant, he can advise on the kind of equipment to install, recommend new types of electrical service, and know what to do when something goes wrong on an existing installation. In this way, the mill is relieved of the bother of keeping on hand replacement stocks which might be subject to deterioration, abuse, or obsolescence.

When a maintenance service is employed, the mill owner is assured that lighting levels will be maintained by regular cleaning of fixtures, reflectors, and diffusers and by replacement of over-age lamps, singly or in groups. The mill man is also saved the expense of acquiring and supervising a highly skilled maintenance crew and can devote the time saved to other matters of importance. Slight attention to lighting should be necessary.

Fluorescent contractor-service organizations usually offer two types of service plans. The first is a complete maintenance program. Under this plan, the mill pays a stipulated monthly rate for fixture cleaning, based on local labor rates, and pays for lamps, starters, and ballasts as the necessity arises for replacement.

The second plan is a partial maintenance service. The mill must give the contractor prompt notification of the failure of any part of the lighting equipment. There are no regular calls and no fixture cleaning, and charges are generally based on a fixed amount determined by unit price per lamp and the number of lamps in each installation.

The job of maintaining a fluorescent lighting system at peak operating levels need be neither a difficult nor costly one for the mill. Some form of planned and systematic maintenance, however, is essential if the mill is to keep high-level lighting always working to assist production, cut down waste, and help minimize plant accidents.

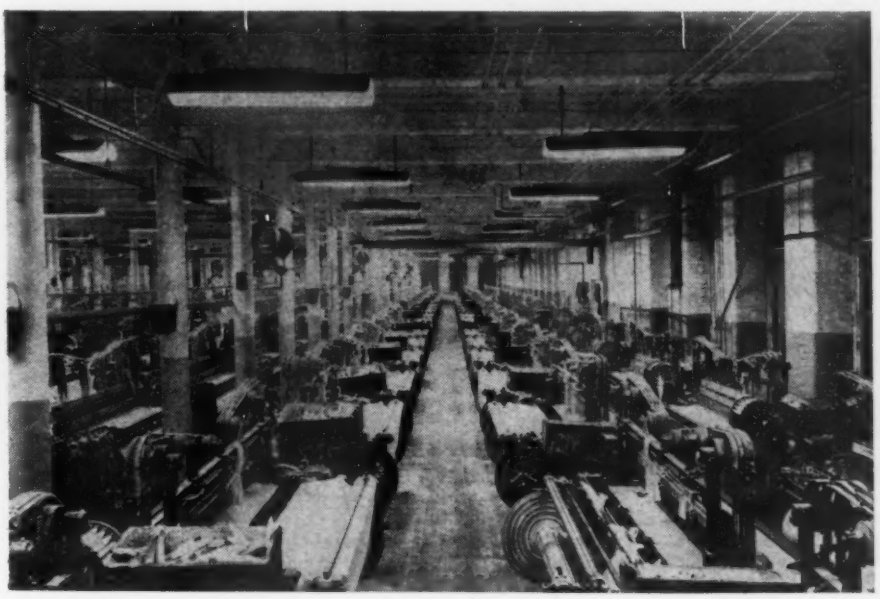


Fig. 3. Fluorescent lighting, regularly and systematically maintained, delivers virtually glare-free light without gradual diminution in quantity.

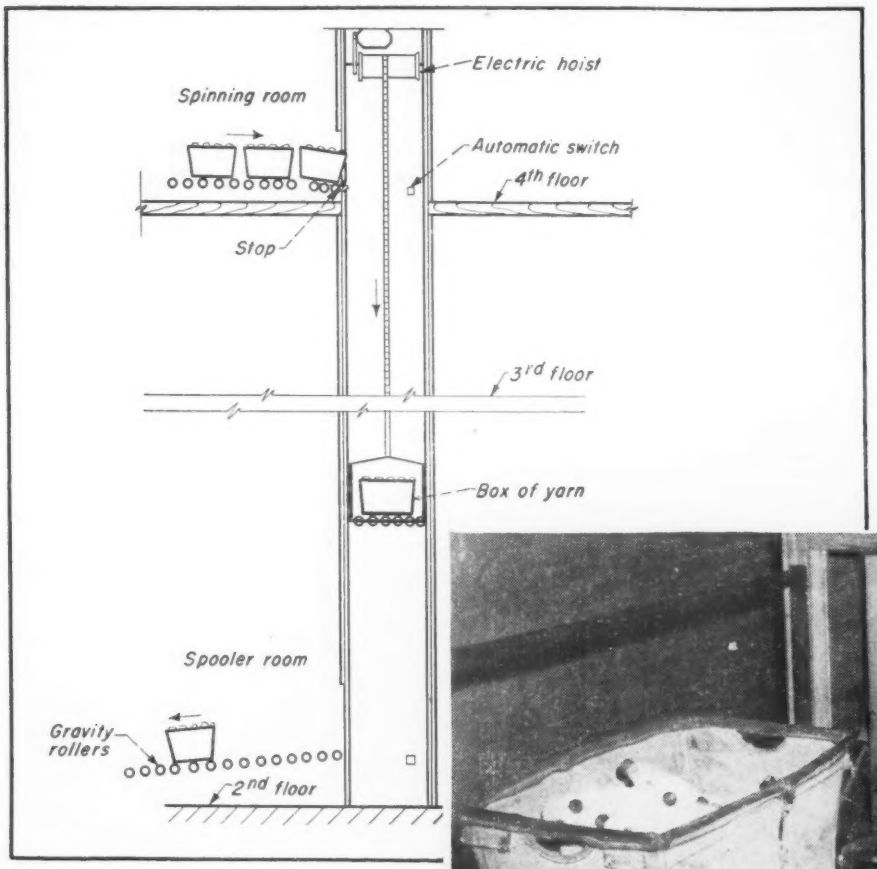
MECHANICAL HANDLING
Saves Money and Labor

HIGHLIGHTS: *"Dumb-waiter" elevator delivers 40 boxes of yarn per hr. without attendance at Avondale Mills, Sylacauga, Ala.—Filling is untouched by hand from the time it is dumped by the doffer until it is dispensed to looms by the filling boy—Empty quills are taken from looms by conveyors.*

By P. M. THOMAS
Associate Editor, TEXTILE WORLD

TO REDUCE THE COST of mill processes and to make jobs easier to perform is the twofold purpose of the materials-handling program now under way at Avondale Mills, Sylacauga, Ala. Keynoting the program with the idea of increasing productive jobs by decreasing nonproductive jobs—or converting present indirect labor to direct labor—the mills are directing their efforts toward eliminating, wherever practicable, dumping, lifting, the use of elevators, and breaks in the flow of materials.

Installations already in use include means for mechanically stacking cotton bales, conveying warp yarn from the spinning room to the spooler room, storing and conditioning yarn, handling warp beams and loom rolls, conveying empty quills from the loom, transporting cloth rolls from the weave



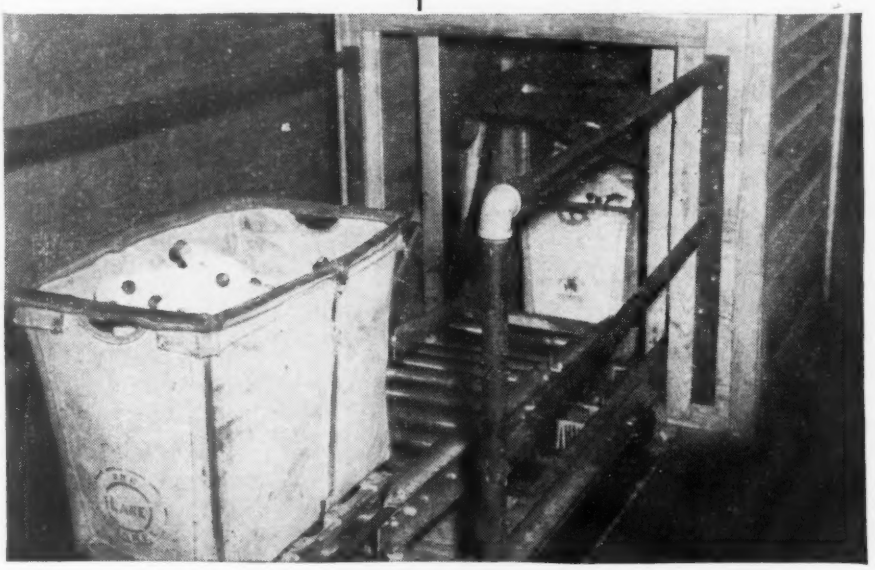


Fig. 1. Operator lifting, dumping, pushing, and using an elevator are eliminated in transporting warp yarn from the spinning room on the fourth floor to the spooler room on the second floor of Eva Jane Mill by the use of a "dumb-waiter" reciprocating conveyor.

An inclosed elevator shaft, built against the wall, extends from the fourth floor to the second floor. At the fourth-floor entrance, shown in this photograph, boxes of warp yarn are placed on a gravity-roll conveyor (shown also on the accompanying sketch). The only handling required for this operation is that involved in the doffer's sliding the canvas doff box off his buggy onto the conveyor.

The box moves by gravity along the conveyor until it gets into loading position on the inclined end section of the conveyor and is stopped by the raised-bar obstruction at the elevator door. When the elevator reaches the fourth-floor level, it strikes the end of the inclined section of the gravity conveyor, raising it so that the box of yarn can pass over the obstruction and onto the elevator. Automatic switches stop the elevator and start it down again. The inclined end of the conveyor is lowered again so that the next box of yarn is stopped by the bar obstruction.

At the second-floor level, a switch is tripped to stop the elevator and reverse it. The box of yarn moves off the elevator onto a gravity conveyor that transports the box away from the elevator exit.

The reciprocating elevator makes 40 trips per hr. and continuously operates except when the gravity-roll conveyor on the second floor becomes filled with boxes of yarn. No one attends the elevator, and its maintenance is assigned to the mill's shop.

It is estimated that this conveyor is saving the mill at least $50 per day.

room to the cloth room, handling cloth in the cloth room, transporting shipping packages, and automatically feeding cone winders and coal stokers.

Other installations now being put in or planned include weighing, transporting, and storing picker laps; conveying card sliver and drawing; automatically feeding spoolers; mechanically dispatching filling to looms; and pneumatically conveying waste.

The program is under the guidance of an engineering force consisting of the mill engineer, an engineer specializing in materials handling, and the master mechanic. Suggestions from anyone connected with Avondale are carefully considered, and many of the installations now in service represent ideas conceived by a supervisor or a worker in one of the plants.

Not only do Avondale's engineers work in close cooperation with the sales engineers of various firms specializing in handling materials, but they also seek ideas from other mills and other industries. A special study of

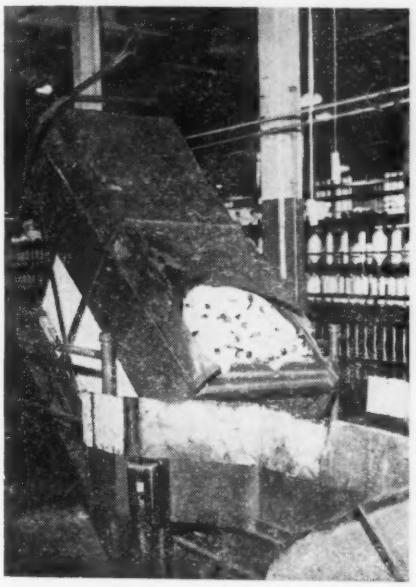


Fig. 2. Manual lifting is eliminated, wherever practicable, by the use of electric hoists, such as the one shown here for lifting and dumping warp yarn onto the feed apron of a conditioning machine.

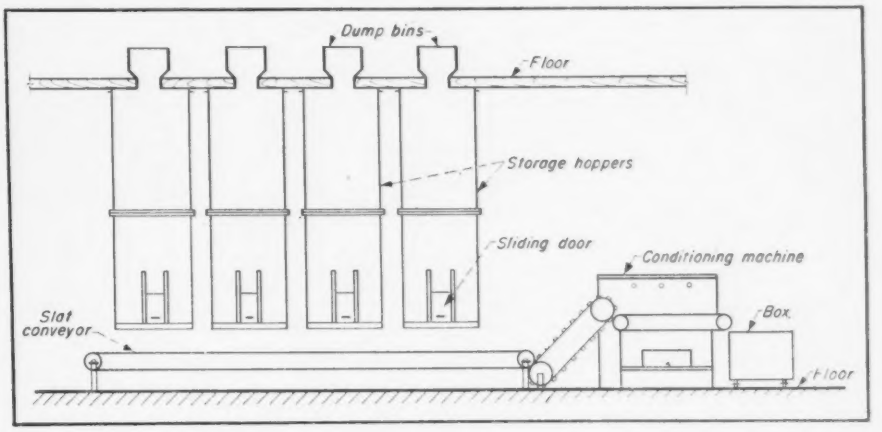


Fig. 3. Means for storing filling and conditioning it as needed, without manual handling, is now being used at Eva Jane Mill. Four bins, for storing four different numbers of yarn, have dumping points in the spinning room on the fourth floor. The outlets of these storage bins and the conditioning machine are located on the floor below.

Doffers dump the filling yarn directly from their canvas doff boxes into the bins shown at the top of this sketch. The filling remains in the storage hoppers until it is needed in the weave room. The conditioning-machine operator then raises a sliding door near the bottom of a hopper, allowing yarn to fall onto a slat conveyor that transports the yarn to the feed apron of the conditioning machine.

A storing and conditioning set-up similar to this one is now being built in Catherine Mill for handling warp yarn to be wound on Foster winders. Nine bins will be used in this unit.

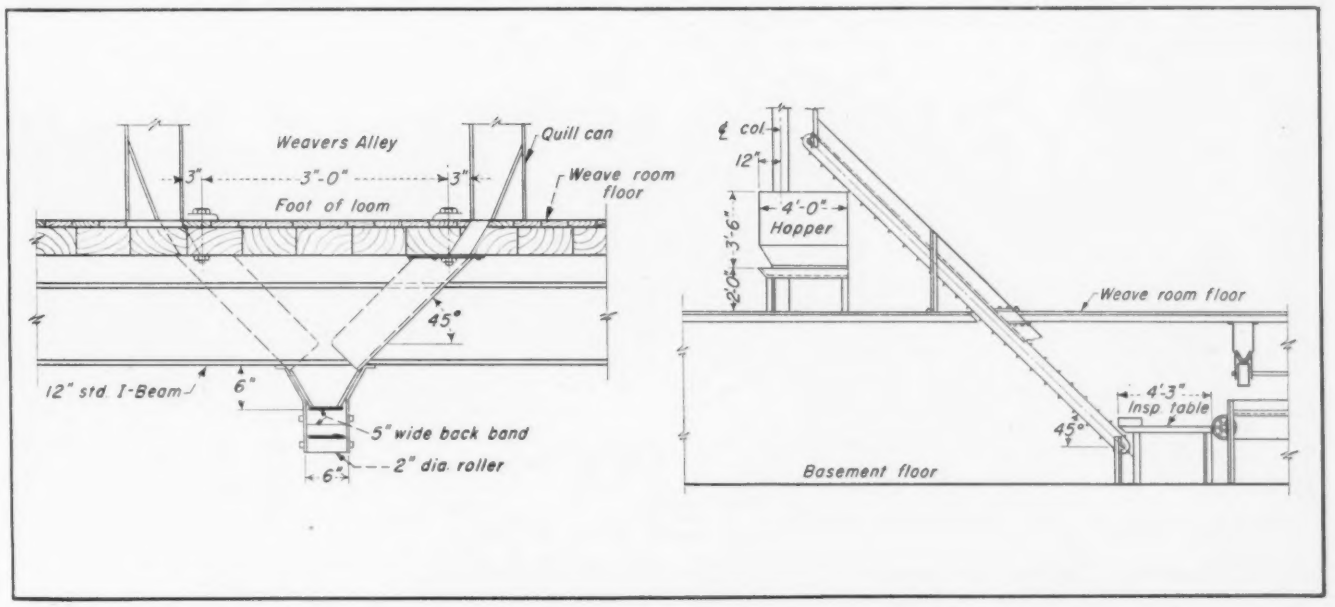
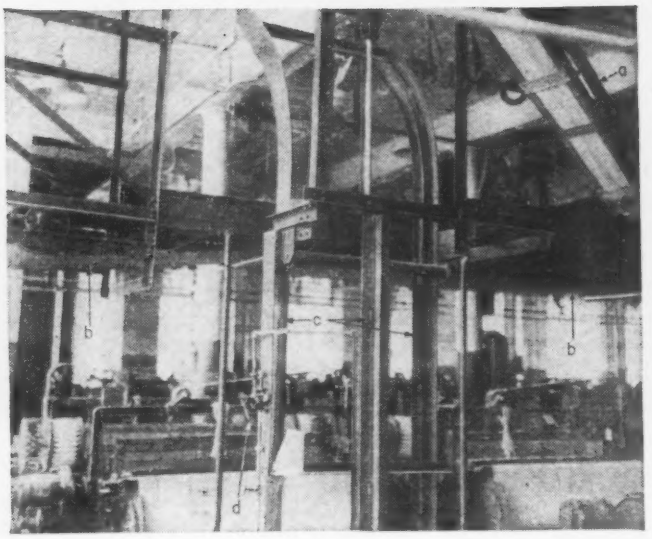
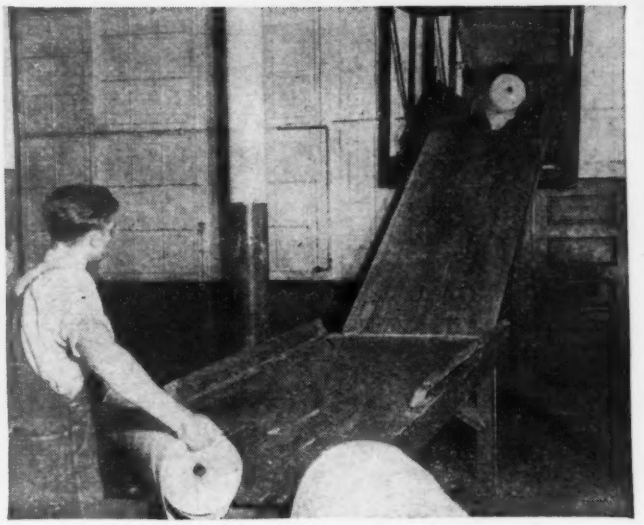


Fig. 4. A system of handling empty quills from the looms, which eliminates all handling except separating shuttle throw-outs, has been devised for Sally B. Mill No. 2.

A quill can at a loom, above left, is fitted with a slanting side to act as a chute to guide quills through a hole in the floor directly beneath the quill can. Beneath the hole is a chute attached to the overhead ceiling of the basement. This chute feeds the empty quills onto a belt conveyor 5 in. wide. Quills from two lines of looms are emptied onto one conveyor, and wooden sides extending about 6 in. above the belt prevent quills from falling off the conveyor.

The quills are delivered to an inspecting table, above right, where the quills that must be stripped are separated from those that do not need stripping. From the inspecting table the empty quills are taken by an inclined belt conveyor, transported upstairs to the spinning room, and dropped into a storage hopper like the one shown in the photograph on the next page.





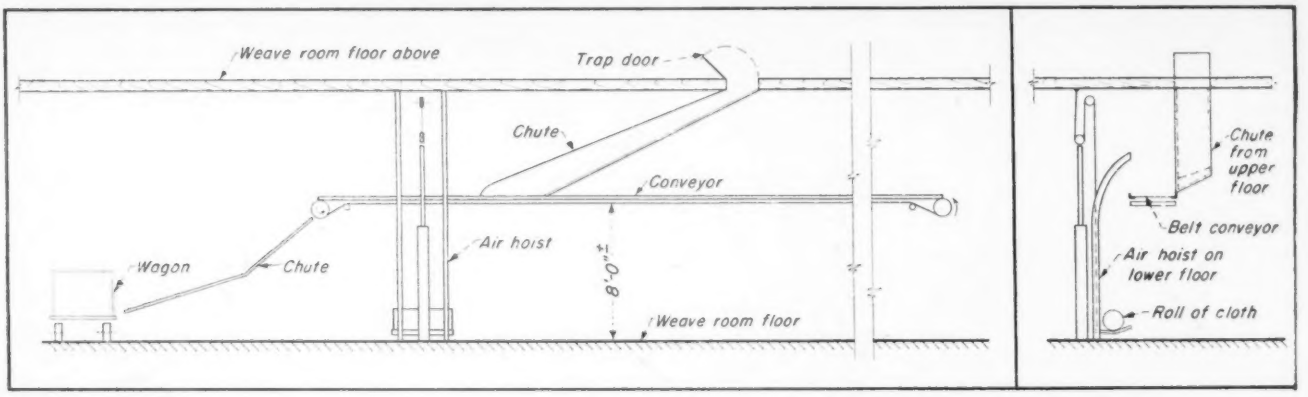


Fig. 5: Transport of cloth rolls from a weave room on the first floor and from one directly above on the second floor to the cloth room of Eva Jane Mill is accomplished by a single belt conveyor installed in the lower weave room.

Loading points of the conveyor are shown in photo at left. Chute a, loaded through a trap door by the cloth doffer on the second floor, guides the roll of cloth onto conveyor b.

Rolls are loaded from the lower floor by a pneumatic hoist, the frame of which is shown at c. A cloth roll is placed on the lifting pan of the hoist, trip handle d is turned, and the hoist raises the roll and dumps it on the conveyor.

The delivery point in the cloth room is shown in photo at right.

Details of the cloth-roll conveyor are shown in the accompanying sketches.

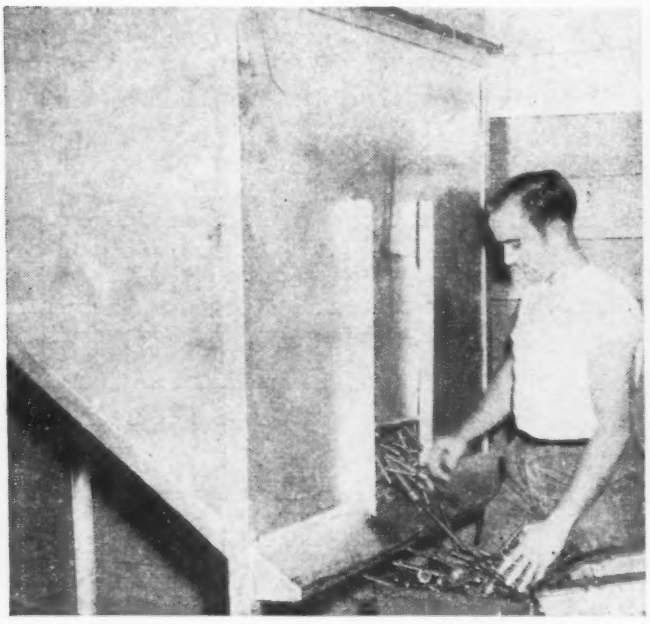


Fig. 6. Hoppers with inclined bottoms and lift doors, used for storing spinning bobbins and quills, relieve spinning doffers of the necessity for stooping and handling in filling bobbin boxes.

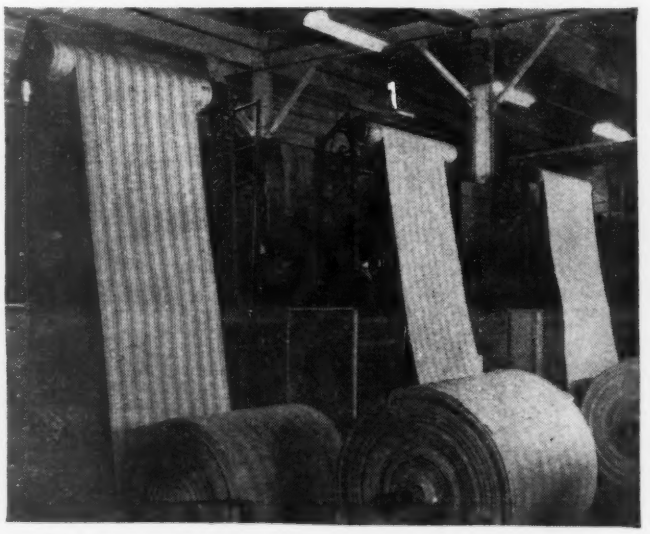


Fig. 7. From the brushers in the cloth room, the goods are conveyed by overhead Monorail tracks to the finishing room, the floor level of which is the same as the level of the floor on which these cloth rolls are resting. By running the cloth from this level to the level upon which the cloth folders shown here are located, the mill utilizes another principle of handling: namely running goods from one level to another without actually transporting them.

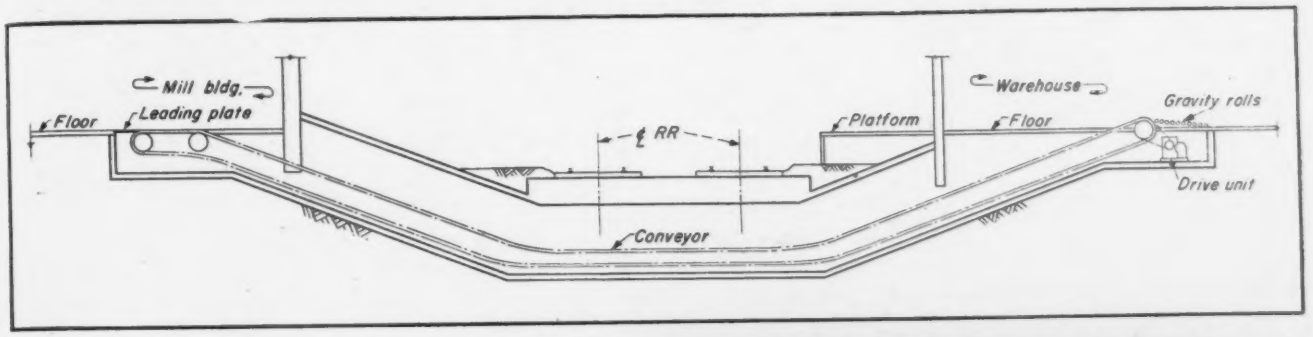
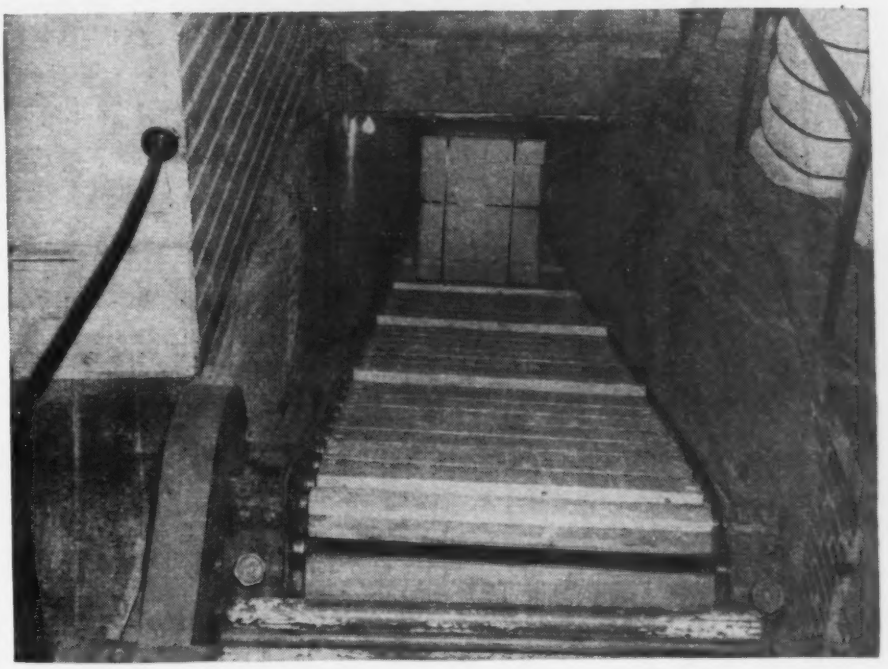


Fig. 8. An excellent example of overcoming obstacles of physical construction is this conveyor for transporting packed sales yarn from the thread-packing room in Catherine Mill to the warehouse. The railroad spur track that serves the mills passes between these two buildings. Formerly, the boxes of thread were trucked from the mill to the warehouse over a runway. The boxes are now transported mechanically through a tunnel by a wooden-slat conveyor, the warehouse delivery end of which is shown in this photograph. From the wooden slats, the boxes move onto a gravity-roll conveyor to a point away from the tunnel exit.



handling techniques has been made in a large number of plants ranging from aircraft assembly to cigarette manufacture, and the adaptation of many ideas not used at present in textile plants is anticipated.

So far, no worker has been eliminated as a result of mechanization of indirect-labor jobs. Instead, jobs and working hours have been increased by transferring workers to productive jobs, thereby eliminating bottlenecks and improving the flow of stock.

The second objective of the program —making jobs easier to perform—has shown a gratifying return to the mills in improved morale of the employees. Some of the installations, such as dispensing packages in the shipping room, have not netted a monetary return; but the elimination of heavy work connected with these jobs has reduced labor turnover, complaints, and absences.

The chief problem encountered by Avondale has been the necessity for "tailoring" the available equipment to meet their particular needs. This problem has required considerable resourcefulness on the part of the engineering force in designing special holding tools, adapting circuits and switches for automatic dispensing, and overcoming obstacles of physical construction.

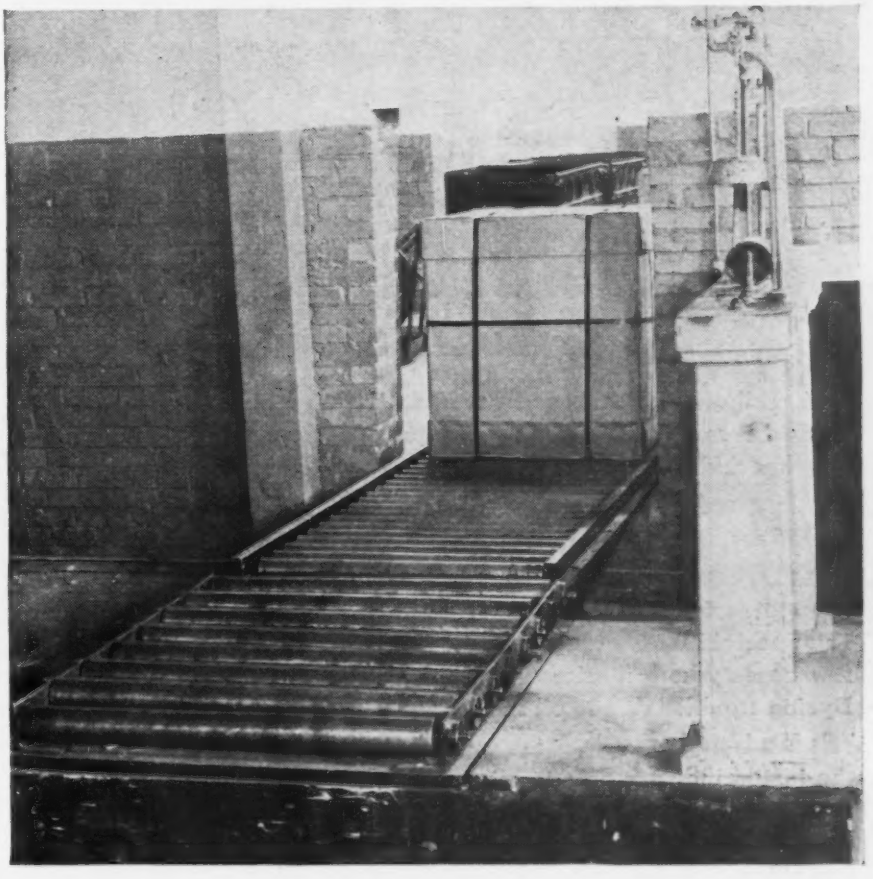
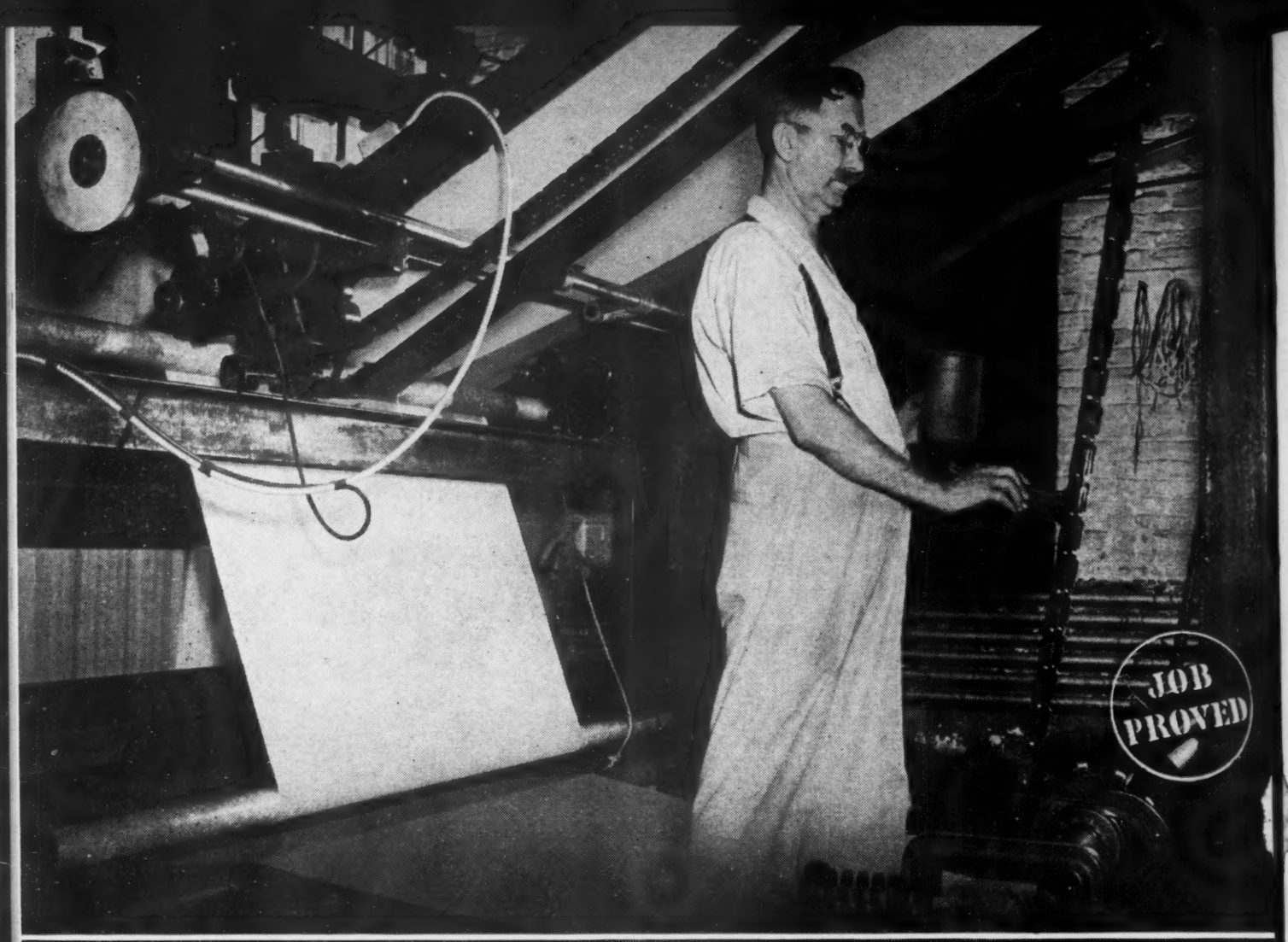


Fig. 9. This gravity conveyor, running from the thread-packing table in Central Mill to the weighing and shipping room, extends from one room to another separated from it by only a wall. However, it eliminates the trucking that formerly was done.



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SILK THROWING
Requires Layout Changes

HIGHLIGHTS: *Return of silk has found many throwing plants in bad balance to handle it — Set up for some typical yarns are given for winding, doubling-twisting, spinning, redrawing, reeling, and coning.*

By SAMUEL J. MILLER

MANY THROWSTERS once again handling silk are faced with the problem of plant layouts and equipment allocations. All during the war, they had been throwing rayon; and many which formerly threw silk had permitted their plants to get out of balance for silk in favor of balance for rayon.

The accompanying production-control table should be helpful in showing spindle allocations for throwing various twists of silk yarns. The chart is made up for a particular plant of 10,400 spindles, but the information can be translated for use in plants of other sizes. Spindles needed to produce any desired poundages of the yarns listed can also easily be calculated.

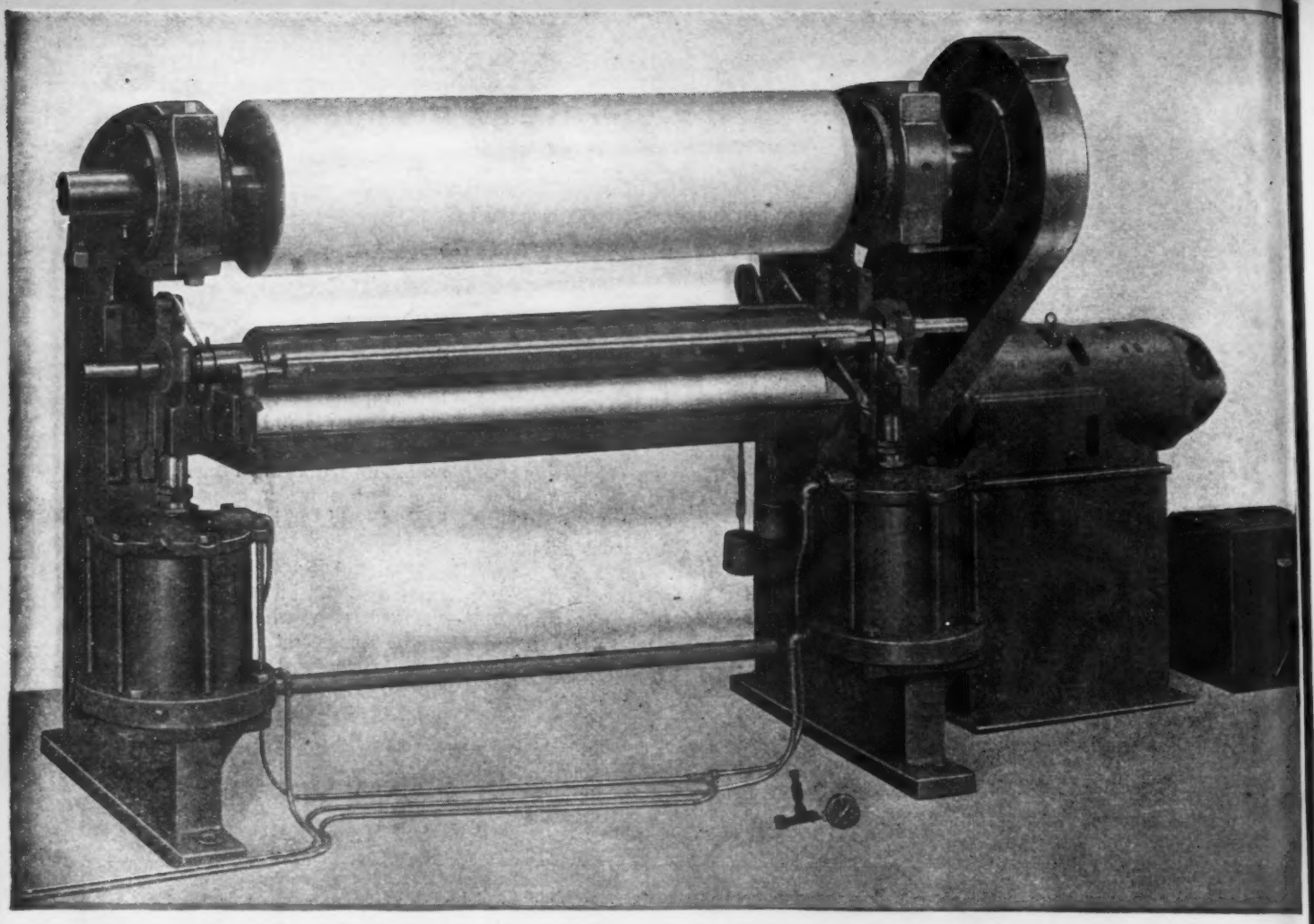
The table shows allocations of winding, doubler-twister, spinning, redraw, reeling, and coning spindles needed. The winding is based on 170 yd. per. min., spinning or twisting is based on 10,000 r.p.m., doubler-twister spinning on 5,800 r.p.m., reeling on 350 yd. per min., coning 250 yd. per min., and redrawing 170 yd. per min. The figures under column numbers 6, 7, 10, 11, and 12 represent shifts worked.

Operations by shifts will vary from plant to plant, but the work by shifts outlined is one which has been found to be quite satisfactory. Spinning spindles (up-twister), of course, operate three shifts. Others operate the number of shifts shown.

The set-up given here also shows operations used in producing various silk yarns.

PRODUCTION CONTROL OF SPINDLE ALLOCATIONS

1	2	3	4	5	6		7			8	9	10		11	12		
Lot	Denier	Yarn	Turns Per Inch	Weekly Production (Pounds)	Winding Spindles Required		Doubler-Twister Spindles Required			Spinning Spindles 1st Operation	Spinning Spindles 2nd Operation	Redraw Spindles Required		Reel Flys Required	Coning Spindles Required		
					1	2	1	2	3			1	2	1	1	2	3
100	20/22	2 thd organ	12/10	1000	700	350	1200	600	400	1600	500	333	166	16			
101	20/22	2 thd organ	16/14	1000	700	350	1200	600	400	2000	800	333	166	16			
102	20/22	3 thd organ	16/14	400	280	140	300	150	100	800	200	100	50	4			
103	13/15	3 thd crepe	65	650	560	280	700	350	250	2200		216	108				
104	20/22	4 thd crepe	62	650	400	200	350	175	125	1000		100	50				
105	20/22	4 thd tram	2½/3	500	350	175	300	150	100			80					
106	20/22	5 thd tram	2½/3	500	350	175	225	115	75			60					
107	20/22	6 thd tram	2½/3	500	350	175	180	90	60			50					
108	13/15	3 thd hosiery	25	1000	840	420	1200	600	400	1300					204	102	68



Automatic Controls for Butterworth 1-Color Printing Machine

High Speed Printing of Single Color Patterns

The new Butterworth 1-Color Printing Machine provides an improved method for printing cotton, rayon and silk fabrics. Single color patterns in stripes and small figured designs are accurately registered by means of pressure machined nips. A heavy balanced printing cylinder made of stainless steel and provided with pneumatic pressure assures more uniform printing results. Friction-free operation is secured with roller bearings.

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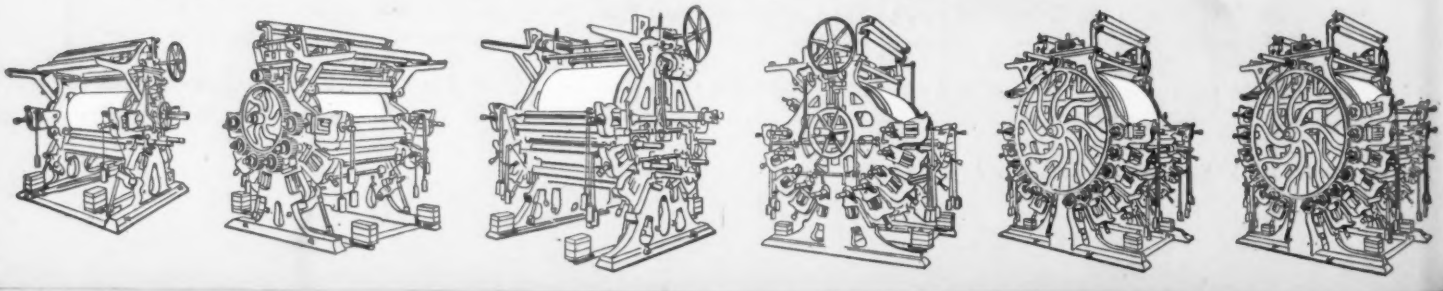
Illustrated below, left to right, are the Butterworth 4-color, 6-color, 8-color, 10-color, 12-color, 14-color Printing Machines.



Erwin Mechanizes
CARD-ROOM CLEANING

HIGHLIGHTS: *Erwin Cotton Mills installs overhead fan on monorail trolley which cleans ceilings over 222 cards every 27 min. — Former hand method of overhead cleaning cost approximately $1.50 per operating hour — Fan adjustable for cleaning cards and floor — Similar overhead cleaners are being installed over Erwin speeders and Piedmont Mfg. Co. spinning frames.*

Mechanization Comes to the Card Room

A cotton-mill manager believed that card-room cleaning should be mechanized. Brooms, mops, air hose, and other methods had been the accepted practice for 20 years in the card room. But in these days of high labor turnover and costs, the manager believed such methods were obsolete. He, therefore, called in the engineers of a prominent company, and together they devised and installed a system of mechanized overhead cleaning for the card room.

The cotton-mill manager was E. M. Holt, of Erwin Cotton Mills, Cooleemee, N. C. To him goes the credit for the origin of the idea of mechanical cleaning for the card room. To Salisbury Cotton Mills, of Salisbury, N. C., (which installed the cleaner first because Erwin was in the throes of a shutdown) goes the honor of being the first cotton mill in America to install the mechanized cleaner in the card room. Granite Falls Mfg. Co., Granite Falls, N. C., appears to be the third cotton mill to install the new system; and Piedmont Mills, of Piedmont, S. C., appears to be the fourth, but they are said to be using the new cleaner in the spinning room as a supplementary aid to the regular frame cleaners which have been in use for several years.

Mr. Erwin of Cooleemee again will have a first when the installation of the same cleaner over speeders is completed, and this project will be watched particularly because of the possibility of accomplishing more varied cleaning on roving frames than on cards. In event the smaller fan can be used to clean the tops of frames, important gains may be made both in matters of cost and in employee morale. Not only that, but successful and varied cleaning of roving-frame tops (in addition to ceiling) may reduce the amount of other frame cleaning now done by hand.

TEXTILE WORLD believes that its readers will welcome Mr. Holt's story, which is condensed from his remarks at a recent Southern Textile Association meeting.

By E. M. HOLT
Manager, Erwin Cotton Mills, Cooleemee, N. C.

UTILIZING AIR as an effective method of disturbing cotton lint, a mechanical over-head cleaner designed and built by American Monorail Co., was installed in the card room of Erwin Cotton Mills, at Cooleemee, N. C., about five months ago. The use of the mechanized cleaner has eliminated the blowing down and other hand cleaning of ceilings and walls in the card room. The ceiling area shown in Fig. 1 has not been cleaned for five months, except by the air stream of the propeller-type fan which was especially designed and mounted for card-room application.

The Erwin cleaner is the second application of mechanized cleaning to card rooms, the first cleaner having been installed in Salisbury Cotton Mills, Salisbury, N. C. The Erwin card room has 222 cards which produce about 13 lbs. per hr. of white and colored sliver from low-to-medium grades of cotton. The staple lengths of the cotton range from $\frac{7}{8}$ to 1 in.

More than 18 months ago, Erwin mills decided that the former methods of cleaning were expensive from the

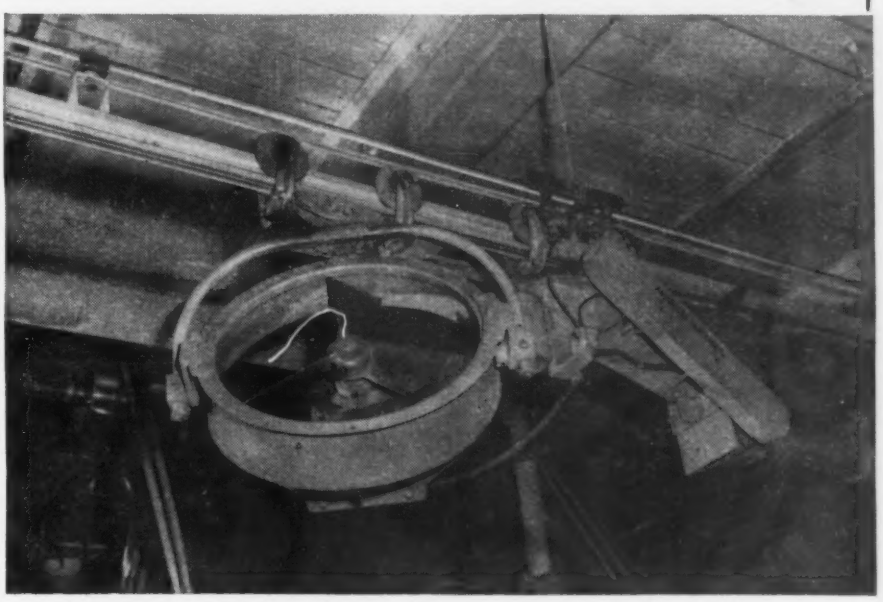


Fig. 1. Closeup of the overhead cleaner and track in the Erwin Cotton Mills' card room at Cooleemee, N. C., shows the details of the second such installation in the United States. Note the clean ceilings, and the pivoted mounting which permits the mill to set the cleaner at any point within 180° of upright position. The fan in the position shown is set for card-room cleaning during the lunch period. (Its position during operating hours is shown in Fig. 4.) It may also be adjusted to blow directly upon the cards and floor, but this method of cleaning is rarely followed at Erwin Cotton Mills.

Steel Shortage Emphasizes Need for —

1. Better plant maintenance

2. More care in storing steel

3. More ingenuity in adaptation

Today's shortage points up as never before the importance of using every available pound of steel to best advantage. It's the responsibility of buyer and seller alike.

Because a machinery breakdown may necessitate replacements not readily available under present conditions, extra maintenance care is essential. Regular painting of exposed surfaces and thorough lubrication of working parts will often prolong the useful life of plant property and equipment considerably.

Industry can cooperate by more careful storage and handling of its steel inventories. Many manufacturers have some steel on hand, but inadequate protection and poor handling facilities may cause deterioration and sometimes the stocks are not in satisfactory condition when needed.

Ingenuity in adapting steel on hand to needs of the moment is a third essential today. Steel buyers can help by specifying cut size on orders for stock lengths, allowing steel-service plants to draw on their inventory of shorts. And the steel warehouse itself can make wide use of adaptation. For example, Ryerson plants continue to carry fair stocks but orders for popular sizes of many products are so numerous that the demand cannot always be met. When this happens, we can often suggest alternate kinds or sizes to do the job. An alloy bar replaces a carbon bar. Two angles form a square tube. In one way or another we may be able to help keep production moving despite the steel shortage.

Our organization is constantly on the watch for ways to make the available steel supply useful to more customers. We promise no miracles, but we will certainly do everything in our power to serve you when you call.

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RYERSON STEEL

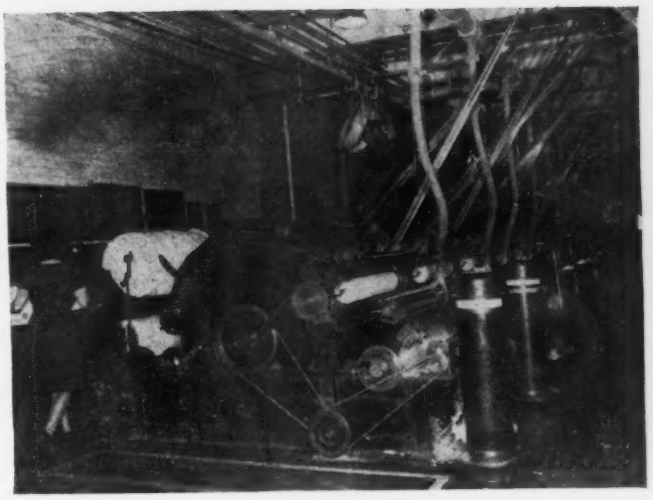

Fig. 2. During the 30-minute lunch period while the cards are idle, the cleaner makes a circuit over the large card room, spot cleaning points which are inaccessible to its regular air stream such as walls and opposite sides of columns. Erwin's manager at Cooleemee, E. M. Holt, author of this article, conceived the need for a mechanized cleaner in the card room and was largely responsible for its adoption and installation. Its use is said to have improved the morale of card-room employees, brightened the card-room atmosphere, and eliminated obnoxious and costly hand-cleaning.

Fig. 3. This view of Erwin Cotton Mills' card-room cleaner shows the condition of conduits, lighting fixtures, and vacuum pipes, which under normal cleaning methods were said to be clogged with accumulated lint. Note the cleanliness of these features, and the extra fan at the rear of the assembly. This small fan carries a ½-hp. motor and is adjustable so that a moderate stream of air may be directed upon the cards if desirable. As the author points out, however, this extra fan is not used at Erwin Cotton Mills since it was made unnecessary by the facility whereby the larger fan could be adjusted for direction.

standpoints of cost and employee comfort. Overhead cleaning was a job in which there was considerable labor turnover. The direct cost of cleaning the department was about $50.00 per week; and, including the production loss on cards which were down during the cleaning period, the total cost of overhead cleaning by conventional methods was estimated at about $1.50 per operating hour.

While complete data on operating and maintenance costs of the mechanized cleaning is not yet available, a considerable contrast to the old conditions may be drawn from the following details. The cleaning unit has only two motors, one of ½ hp., the other of 1 hp. Parts replacement on an annual basis has been estimated at about $15.00. Maintenance of the unit is simple: only about 30 min. per week are spent on the entire installation. Four parts of the unit are oiled weekly, the fan is cleaned daily, and ball bearings are lubricated every four months.

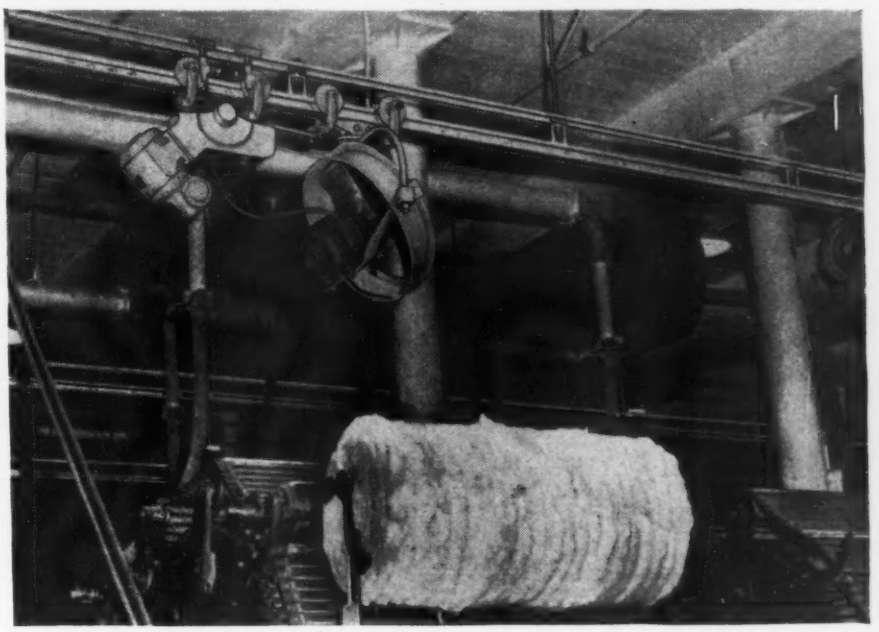

Fig. 4. During operating hours, the card-room fan is set to blow directly ahead of the travel as shown in this view. The fan unit is 9 ft. 6 in. from the floor at Erwin's Cooleemee plant. Engineers, who discussed the new cleaner at a recent Southern Textile Association meeting, stated that air-conditioning ducts which cross the "t" of the card-room alleys may complicate the installation of tracks for the cleaner. At Granite Falls Mfg. Co., Granite Falls, N. C., the engineers stated that the track was placed under the air-conditioning duct advantageously, but that they believed that very low ducts should be raised, if this was necessary, for the installation of the cleaner in the card room.

ORIGIN OF CLEANER. In cooperation with American Monorail Co., Erwin Cotton Mills set about the task of working out a practical method of cleaning the card room mechanically, a task which was complicated by the presence of obstructions, such as driving belts, motors, and pipes.

A 20-in. propeller-type fan was mounted on a standard electric monorail trolley and was pulled along the track by a driving unit known as a Monotractor, which was mounted on rubber wheels. With the track located approximately in line with the card-cylinder shafts, the engineers discovered that the 20-in fan would cover the card room properly. Only a few offsets were made in the track to circle obstructions.

To mount monorails which would cover the 222 cards required 2,300 ft. of track, 13-ft. spacings between tracks, and proper curves at the ends in order to tie all the straight lengths into a continuous loop. The cleaner was made to travel the continuous loop of monorail track at a speed of

(Continued on page 204)

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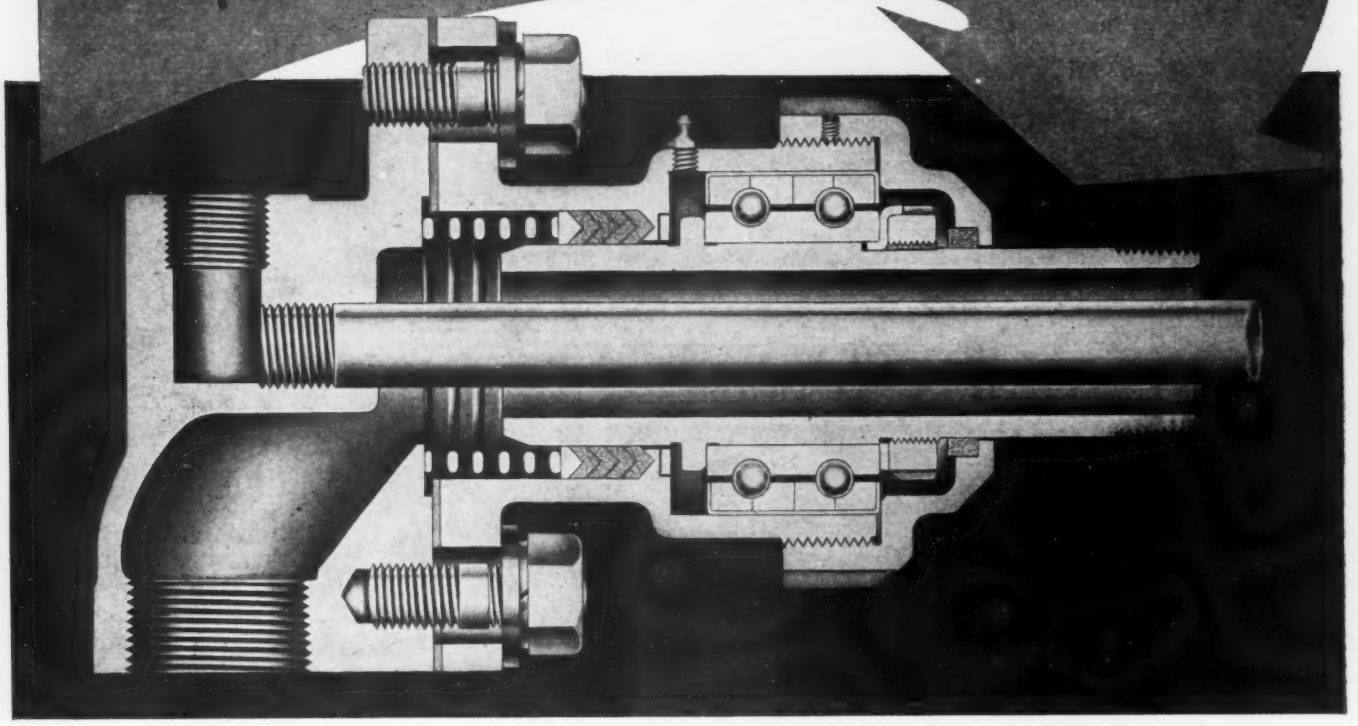

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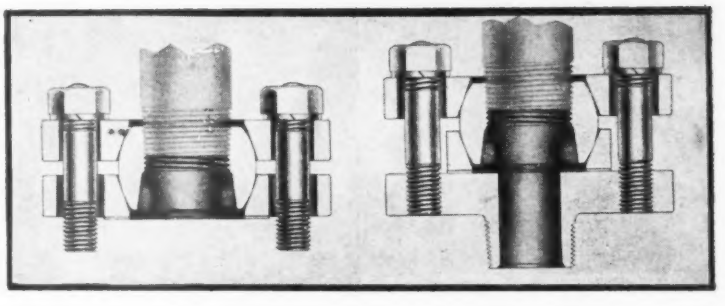

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Cross-section view of Barco Ball Flange for use on threaded and flanged rolls for correcting roll misalignment. The sleeve can rotate concentric even though threads on roll are tapped off center.

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KNITTING MILLS Tighten Their Technical Standards

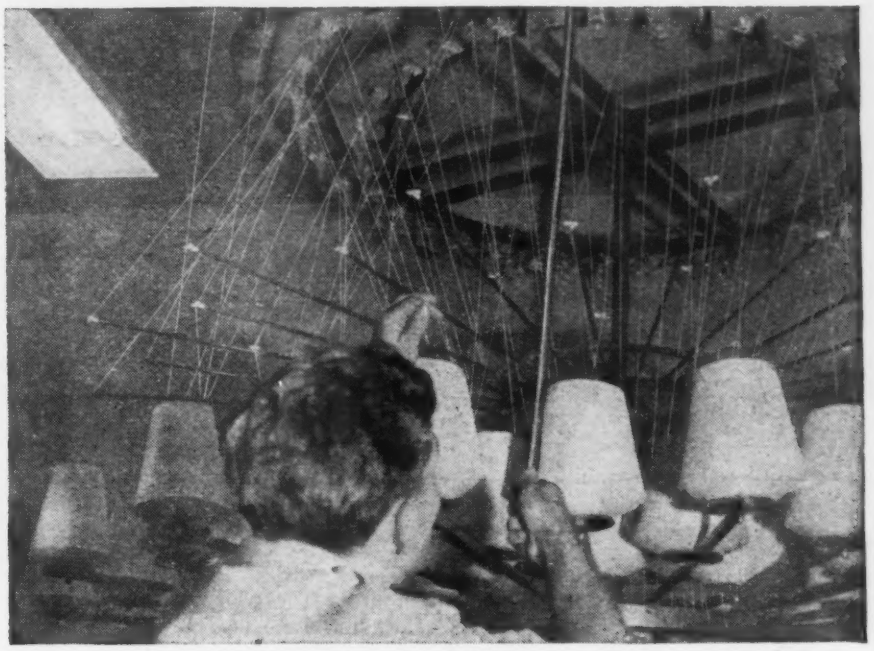

Fig. 1. The larger the number of feeds on circular machines, the greater the production loss when a yarn stop occurs and the greater the need for some control of yarn quality. To reduce yarn stops, knitting mills test the operating qualities of yarns and set a standard of performance which is expected from the yarns in the future. With good yarn, mills can maintain a startlingly high production on 64-feed machines.

Yarn-Receipt Report

Mill CIRCULAR-KNIT MILL Date 10/9/46

Yarn Mfr. AGAR SPINNING Case No. 342 For Machines #3 CIRC.

Yarn Construction ORDERED 18/1 COMBED PEELER 12.75 t.p.i.

Yarn Construction RECEIVED 17.95/1 COMBED PEELER 12.30 t.p.i.

Test Details: Counts 17.95 T.P.I. 12.30 Yarn Condition FAIR

Remarks: YARN IS LINTY

Moore

Yarn-Receiving Department

Fig. 2. The yarn-receipt report is the start of one method used to set up standards. The above sample report condenses the analysis made of the knitting yarn as received by the mill. Further steps are necessary, however, if the mill is to discover how the yarn runs on the knitting machines.

HIGHLIGHTS: *Practical standards used by mills to control processing qualities of knitting yarns—Important savings possible where yarn stops cause large production loss, such as in large-feed circular machines—Test of 18/1 combed peeler shows 13 yarn stops in three hours.*

By C. MALLARD BOWDEN
Southern Editor, TEXTILE WORLD

THE FUNDAMENTALS of operating and quality standards are being rediscovered, as knitting superintendents seek to overcome the production faults which have characterized an abnormal five years. New machinery, as available, has improved mill operation, but even the new machines require careful study and testing before adequate maintenance standards are evolved; and the new techniques, such as those presented by the high-speed tricot and the larger-feed circular machines, are to be subjected to closer inspection and study by the mills before maintenance and cleaning schedules are established. (For a description of the circular-machine maintenance schedules as worked out at Elbert Mills, Inc., see the June, 1946, TEXTILE WORLD).

The knitting quality of yarns, always a key factor in knitting-machine efficiency, fell to a new low during the last five years because of the general economic conditions which prevailed. However, knitting yarn quality is always elusive even in normal times, since the yarns have special characteristics of blend, twist, evenness, and feel, which are obtained only from the best yarn-manufacturing facilities.

Thus, the new emphasis among knitters for better machine efficiency through analysis and study begins with the yarn itself. In fact, the emphasis actually began in the struggle for yarn supply which lead to vertical and other special set-ups with yarn mills, since knitting mills found that the new supply did not always provide the required

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Analysis of Knitting-Yarn Creel Stops

Mill CIRCULAR - KNIT MILL Machine #3 CIRCULAR

Yarn 18/1 T.P.I. 12.30 Material COMBED - PEELER COTTON

Hours elapsed during test 3 Date 10/10/46

CAUSES OF STOPS	NUMBER OF STOPS
Lint Accumulation	7
Tangled Cones	2
Poor Transfer	2
Broken Yarn	1
Knots	1
Weak Yarn	0
Total Stops	13
Stops Per Hour	4.3

Fig. 3. A simple method of checking creel or yarn stops is shown above. The knitting superintendent knows which yarns are best for particular machines and can advise yarn-production departments of the causes of yarn stops. He can also use the data to set a standard number of stops for this yarn; and in the case of vertical organizations which control both yarn manufacturing and knitting, the standards are used as incentives to stimulate improvements in the processing qualities of yarn.

Fig. 4. Yarn defects not only cause costly yarn stops on knitting machines, but also can cause holes and other imperfections.

quality of yarn. Vertical integration, thus, means that knitting mills are undertaking the responsibility for yarn quality, the results of which the knitting superintendent must still put to the acid test of actual performance during mill processing.

Regardless of the yarn source, accurate data must be obtained on the processing qualities of the yarn. If the mill purchases yarn, accurate data will permit a wiser purchase of yarns when markets are more favorable; if the mill manufactures its own yarns, processing data will show just how the various yarns compare during operational tests and will permit the yarn-production departments to undertake whatever remedial steps are necessary.

YARN-RECEIPT TESTS. Without in any way suggesting a complete system of testing, the development of operating standards for yarns may begin with the receipt of the yarn at the knitting mill. Sample data of a yarn-receipt test is shown in Fig. 2. With such information and with other tests which will suggest themselves to the knitting superintendent, the mill may obtain an analysis of the purchased yarn and can undertake more detailed operating analysis after the yarn is in production.

Standards for yarns or for processes are developed wherever it is necessary to confirm the desirability or undesirability of a particular construction or process. In the case of yarn, these standards may be obtained from actual analyses of the yarn defects which appear in the fabric, or from the yarn or creel stops incurred during processing. The latter method is used in the illustration shown in Fig. 3, which is entitled "Analysis of Knitting-Yarn Creel Stops."

The analysis deals with 18/1 combed peeler yarn and reveals a total of 13 stops during the three-hour testing period. By far the largest source of creel stops during this particular test is listed under the head "lint accumulation," which suggests that this particular lot contained very poor-quality yarn. Combed yarns do not usually have such a large number of creel stops due to the presence of lint, and a small amount of cooperation between the knitting and yarn-manufacturing departments should uncover and remove the source of most such stops.

To repeat, the analysis shown in Fig. 3 is used in two ways:

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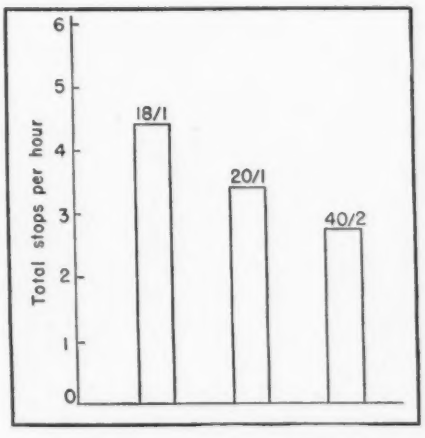


Fig. 5. Comparing the stops per hour of various yarn numbers, the knitting superintendent finds some startling facts about his yarn. Note that the stops from a test of 18/1 exceeded those from 40/2 and 20/1.

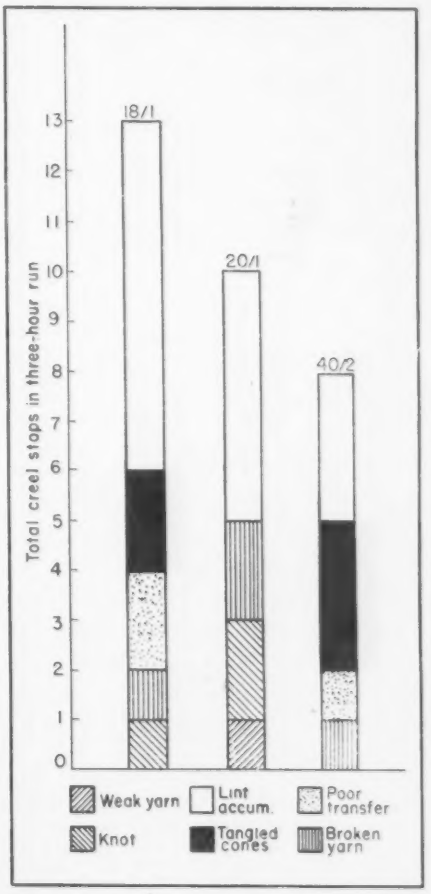
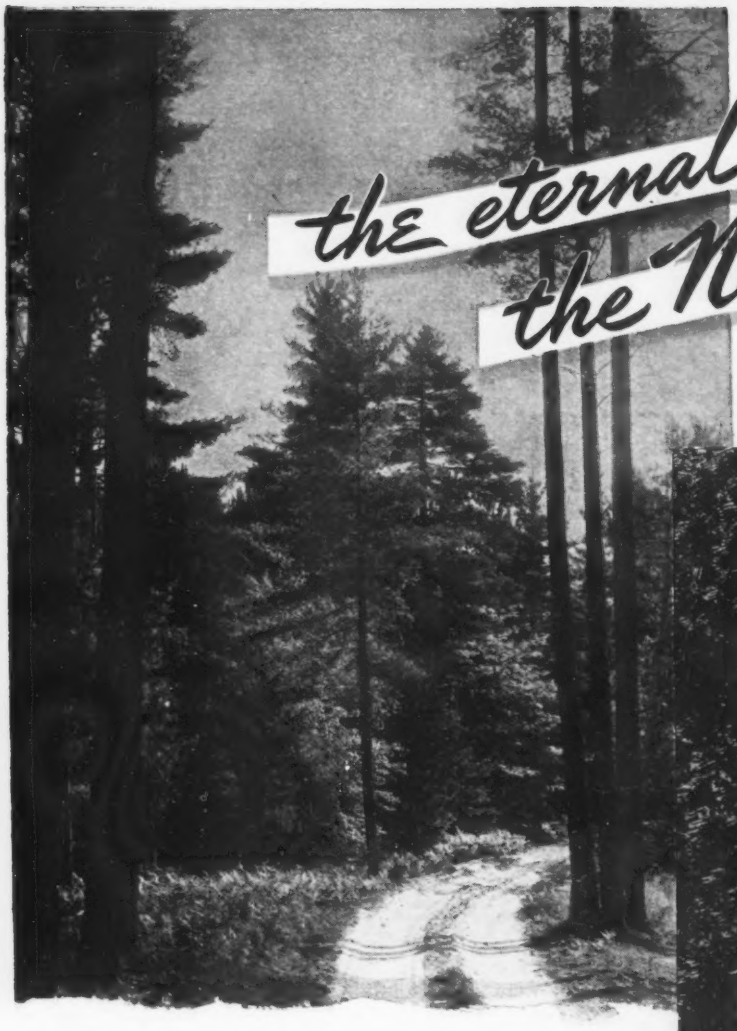


Fig. 6. In the above graph, the detailed causes of yarn stops have been plotted against the appropriate yarn numbers. Note that stops due to lint accumulations were high for 18/1, low for 40/2, and fair for 20/1. The last had by far the best record of single yarns as far as total stops were concerned. But its record for broken yarn and weak yarn was inferior. With such comparisons, knitting mills can aid the yarn-production departments in the location of the causes of poor yarn quality.



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Can Improve SLASHING, Georgia Mill Men Say

HIGHLIGHTS: *Textile Operating Executives of Georgia receive written answers to questions on slashing and weaving from 18 mills — Variable-speed drive, and moisture and steam controls make possible a slasher-speed increase of about 60%—Hot-air slasher at Swift Mfg. Co., Columbus, Ga., dries 4.50s to 8s yarn at a maximum speed of 60 yd. per min.*

OPERATING TECHNIQUES currently employed in cotton slashing and weaving reveal that these two departments of the mill are being subjected to intense study and experimentation. Eighteen Georgia mills, representing 916,166 spindles and 20,225 looms, submitted written answers to eight questions on slashing and eight questions on weaving in response to a questionnaire sent out by the Textile Operating Executives of Georgia in preparation for its fall meeting. These 16 questions were also discussed from the floor at the meeting in Atlanta, Oct. 12.

The written report, containing the original answers of the 18 mills, and parts of the discussion from the floor have been condensed for publication in TEXTILE WORLD. The questions and answers relative to slashing appear here; those on weaving will appear in an early issue.

Question No. 1. *Give in detail any information you can furnish, from experience or observation, on the use of any form of variable-speed drive and moisture control on slashers.*

Of the twelve mills answering this question, nine favored the use of variable-speed drive and moisture control; one uses Taylor control instruments for its slashers and size kettles; one uses cones for speed control and believes that automatic moisture control should be adopted; and one is of the opinion—based upon observation—that mechanical difficulties of adjustment render such auxiliary equipment unsatisfactory.

Mill No. 4 wrote: "We have Westinghouse variable-speed drive with Brown moisture control and Brown steam control on a three-cylinder slasher running sets of 21s, 25s, and 30s yarn from 2,500 to 4,000 ends. The increase in speed that we are trying is from 40 to 65 yd. per min., an increase of approximately 60%. This increase made it necessary to increase the weight of the finisher roll from 600 lb. to 800 lb., which in turn made it necessary to change the blankets from two 4-yd. pieces to two 6-yd. pieces. It was necessary also to increase the size of the buckets in the cylinders in order to carry off the increased amount of condensation and to replace the plain cylinder bearings with ball bearings."

Robert McCamy, Pepperell Mfg. Co., Lindale, Ga., reported from the floor that Pepperell has two three-cylinder slashers equipped with moisture-control units, one with variable-speed motors and the other with a Reeves variable-speed drive. Warping sets of 2,500 ends of 21s yarn, the mill obtains results comparable but no better from the standpoint of weaving quality than it obtained before install-

Mill No	Nature of Change	Amount used to Displace Corn Starch	Yarn Nos.	No. Ends	Results
1	Wheat extender	30%	4.50s 17.50s	1,200 to 5,500	Weaving qualities lower; more shedding; cloth runs on heavy side; breaking strength the same.
4	Extender	——	21s	3,000	Weaving qualities and breaking strength the same; less weight added; size foams more and thins down faster.
6	Extender Substitute	—— 100%	12s, 14s, 17s 12s, 14s, 17s,	2,500 to 6,500 2,500 to 6,500	Loom efficiency unchanged; 3% less weight added. Yarn sticks to cylinders; more shedding on looms; lower loom efficiency.
8	Extender	——	14s to 32s	1,600 to 3,900	Added weight the same; more shedding; efficiency dropped more than 2%; breaking strength the same; elongation decreased 10%.
10	Extender	——	10s	2,280	About 2% more size required to obtain the same weight of cloth; breaking strength unchanged.
11	Resinous-compounds Extender	12% to replace 25% starch	8s to 30s	1,300 to 2,400	Results unsatisfactory.
12	Wheat substitute	100%	2.50s	1,372	Causes yarn to look dirty; congeals easily, requiring closer watch of temperatures; clogs drain pipes.
16	Wheat extender	40% & 25%	12s	1,080	Results of 40% batch unsatisfactory; 25% batch adds about the same weight; more end breakage and more sh dding at slasher fronts and at looms.
18	——	——	30s	2,485	Increase of 1% in added weight; breaking strength same.

Fig. 1. Results obtained from using substitutes or extenders to replace corn starch in the slashing size are shown here. These results were submitted in written form in answer to Question No. 3.

Choose New Officers

OFFICERS ELECTED at the fall meeting of the Textile Operating Executives of Georgia, in Atlanta, Ga., Oct. 12, 1946, were:

J. L. Jennings, superintendent, Fairfax Mill, West Point Mfg. Co., general chairman, succeeding Lawrence R. Brumby, factory manager, Bibb Mfg. Co., Macon, Ga.;

R. P. Hardeman, superintendent, gray mill, Riegel Textile Corp., Trion, Ga., vice-general chairman, succeeding J. L. Jennings;

Robert W. Philip, president, Callaway Institute, Inc., LaGrange, Ga., re-elected secretary-treasurer for the 25th consecutive term;

R. O. Roberts, superintendent, John P. King Mfg. Co., Augusta, Ga., succeeding R. P. Hardeman; and

W. E. Vecsey, manager, General Tire & Rubber Co., Barnesville, Ga., to fill the unexpired term of H. H. Hughes, Gotswold Fibers, Columbus, Ga., resigned.

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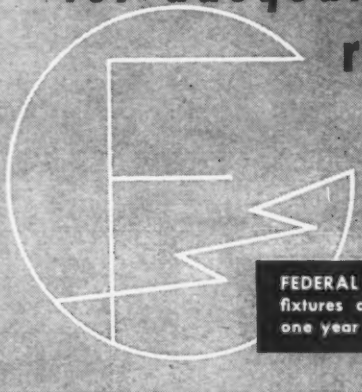

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ing this equipment. The Reeves drive can be installed at a lower cost than the variable-speed motors, but this advantage is offset by a higher maintenance cost.

Question No. 2. *What is the best method of removing condensation from slasher: siphon or buckets? With the two different types, what difference do you find in temperature from side to side of the cylinder?*

Sixteen mills submitted written answers to this question. Eight of these mills use buckets to remove condensation from slashers, five use siphons, and three use buckets and siphons.

Mill No. 1 reported that removing condensation by buckets requires 15 to 20 min., during which time the slasher must be slowed considerably. Mill No. 8, using both buckets and siphons, stated that when constant steam pressure is maintained at 9 to 10 lb. it obtains excellent results from siphons; but if this pressure could not be maintained, it would prefer the use of buckets. The only trouble experienced with buckets resulted from allowing them to get in poor mechanical condition.

From the floor, Mr. McCamy reported that at Pepperell they find no difference in the temperature from side to side of the cylinder. Using siphons, Pepperell has found one of the chief advantages to be freer wheeling, which reduces strain on the yarn, because of the elimination of the friction caused by the asbestos-packed bearings formerly used with the bucket installations. Another advantage of the siphon system was said to be that a better job of installing can be done. Pepperell has found, however, that the siphon system does not aid in heating the slasher any more quickly.

Question No. 3. *What has been your experience with starch extenders and substitutes in regard to weaving qualities, weight added to gray yarn, and breaking strength?*

The written answers to this question are shown in tabulated form in Fig. 1.

Question No. 4. *Have you had any experience with auxiliary drying of the warp between the size box and the first cylinder? If so, what is the advantage, with reference to quality or improvement in weaving conditions? Have you had any experience with splitting out the warp between the size box and the first cylinder?*

Only four mills answered the first part of this question; and of that number one favors infrared drying, two find

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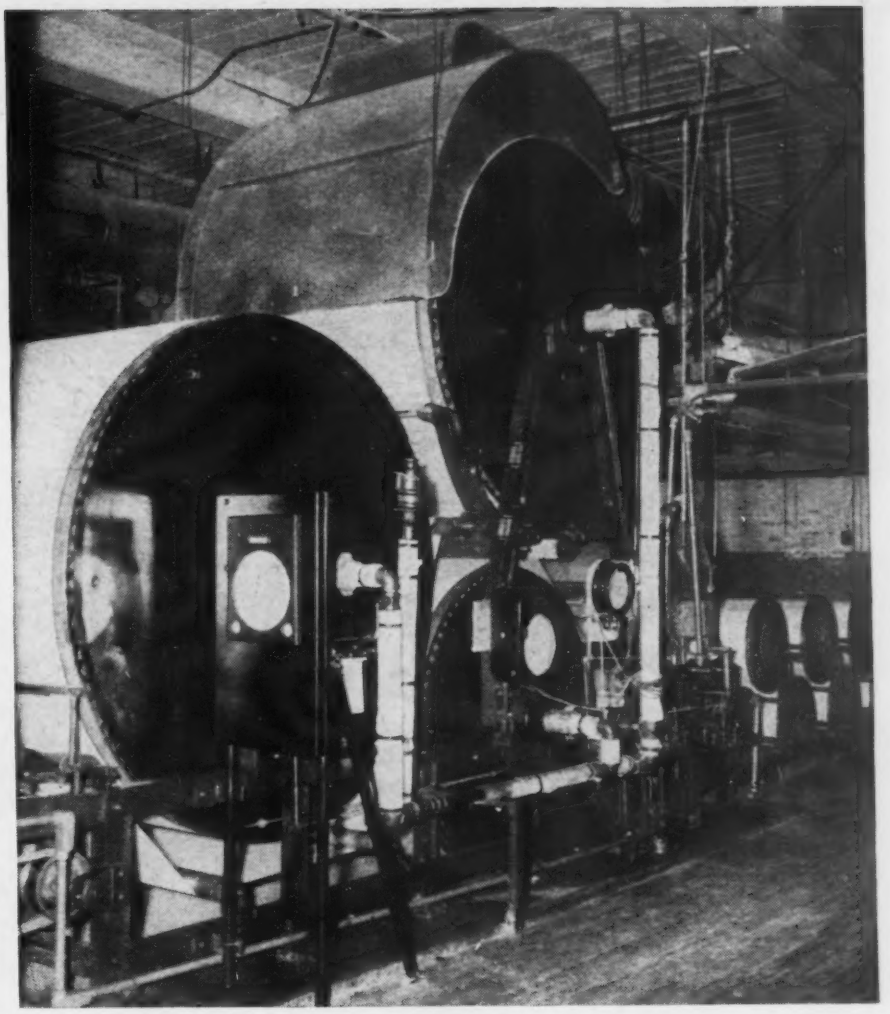

Fig. 2. Installing a third cylinder, similar to the one in this three-cylinder set-up at Columbus Mfg. Co., Columbus, Ga., was said at the meeting to be a practicable means for speeding up a two-cylinder slasher. Considerable overhead space is required for such an installation.

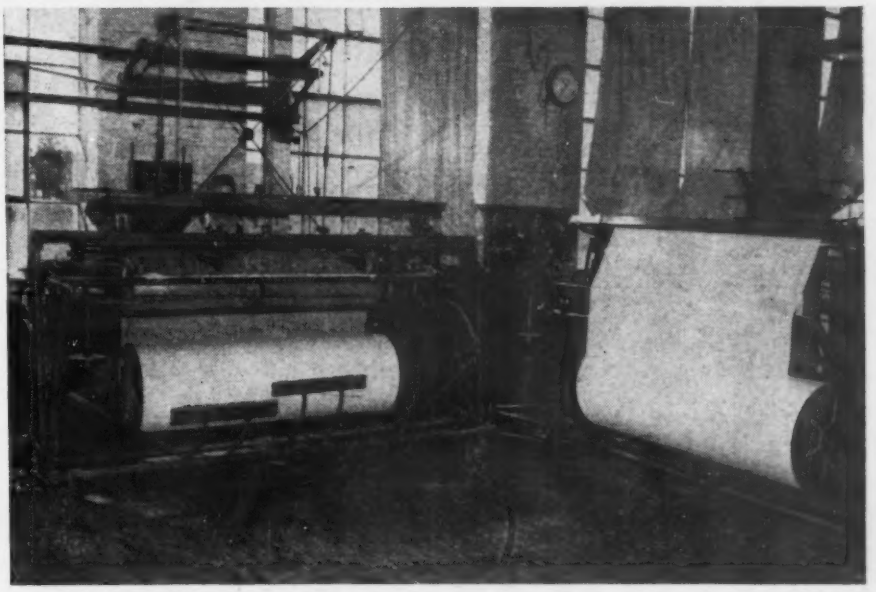

Fig. 3. This Barber-Colman stationary tying-in machine at Columbus Mfg. Co. operates 96 hr. per week. Each day the first-shift operator spends the last ½ hr. of the shift in blowing off the machine with compressed air, oiling it, and making minor repairs. Once a week this operator disassembles the machine for a thorough cleaning and to replace worn parts.

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Nylon Leads in Tests of HOSIERY REINFORCEMENT

HIGHLIGHTS: *Heel and toe reinforcement has seemed to lack scientific direction—Various materials are used—Abrading machines seem to offer means for comparative data—Results of series of tests with worsted hosiery on one such machine show nylon best reinforcement, followed in order by linen, cotton, worsted.*

By H. WIGNALL,* *Leicester, England*

SCIENTIFIC MEASUREMENT of the efficiency of knitting reinforcements such as are found in the heels and toes of hosiery presents a large field for research. From a purely theoretical viewpoint, experiments have been difficult; and recorded results are not usually released when made by private investigators.

Various claims have been made for reinforcing efficiency by manufacturers in the past, using such descriptions as "3-ply heels and toes," "linen spliced," etc., without scientific data to substantiate any claims. Recently, laboratory tests have been made utilizing a newly-developed machine for testing resistance to abrasion, called the Goodbrand friction tester. With this machine, fabric is clamped in a small ring held at the lower end of a spindle. This rests on a prearranged rubbing surface at a controlled pressure and is gently rubbed in a circular manner over the friction plate. The number of rubs is recorded automatically on a counter and four tests may be carried out at the same time. Doubtless similar abrasion testers of other makes would also be applicable to experimentation with hosiery.

For comparison purposes, great care has to be taken to find the rubbing surface most accurately coinciding with the material against which the fabric will rub in actual service. For the purpose of experiments recently carried out on worsted hosiery, it was decided to use a hard-woven cotton twill as the rubbing surface. Such a fabric is often used for lining parts of shoes.

TESTS MADE. The reinforced knitted materials for these tests were carefully selected, so as to be representative of the principal groups used in the production of knitted worsted footwear. It was felt that the results would be of practical value since the wear at the heels and toes is probably due mostly to friction.

The four groups chosen are listed below:

1. 2/16s, 56s quality, worsted reinforced by 1/90s lea linen.
2. 2/16s, 56s quality, worsted reinforced by 1/36s combed cotton.
3. 2/16s, 56s quality, worsted reinforced by 1/50s, 64s quality, worsted.
4. 2/16s, 56s quality, worsted reinforced by 200-den. nylon.

The last group was introduced because it was felt that nylon offered interesting possibilities for friction resistance in comparison with the other three groups. Considerable care was taken to produce material for testing that was even in character and texture.

Initial results were to some degree misleading and showed nylon as the outstanding reinforcing agent, followed at a great interval by linen, cotton, and worsted in that order. Each set of four tests took about one week, and great variation was noted in the results of each. These results are shown in Table I. The final averaging of the tests showed nylon in the lead, but by no great margin.

The erratic behavior of the materials under test was not unexpected; but, based on a series of practical wearing tests, the average results are regarded by the experimenters to be sufficiently accurate to serve as a guide for hosiery manufacturers.

* *The author acknowledges the laboratory assistance of Brian Atkins.*

Table I—Results of Tests on Four Constructions of Hosiery Heel-and-Toe Reinforcements

Yarns used for reinforcement with 2/16s, 56s, worsted	Number of Rubs Before Exhaustion							Final Rank in Tests
	No. 1 Test	No. 2 Test	No. 3 Test	No. 4 Test	No. 5 Test	No. 6 Test	Average of 6 Tests	
1/90s Linen	38,667	25,408	32,960	36,535	31,232	29,560	32,394	2nd
1/36s Cotton	36,668	26,302	30,973	27,113	28,952	27,009	29,503	3rd
1/50s, 64s, Worsted	30,165	27,639	21,393	25,491	27,651	28,153	26,749	4th
200-Den. Nylon	51,938	31,007	29,196	28,074	32,132	29,107	33,576	1st

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gives extremely low ether extraction

•

helps remove pitch or tar easily

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improves spinning and performs equally well on either mules or frames

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does not become set in the yarn during steaming nor in the goods after steaming and crabbing

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NOPCO EVOLVED THROUGH RESEARCH

Life of Parts Lengthened By CHROME PLATING

HIGHLIGHTS: *Chromium is one of the hardest commercially used metals, being about twice as hard as steel—Chrome-plated printing rolls give sharper impression, do not require re-engraving—Plated Schreiner rolls outwear five sets of steel rolls—Spinning frames come up to speed faster when parts are plated.*

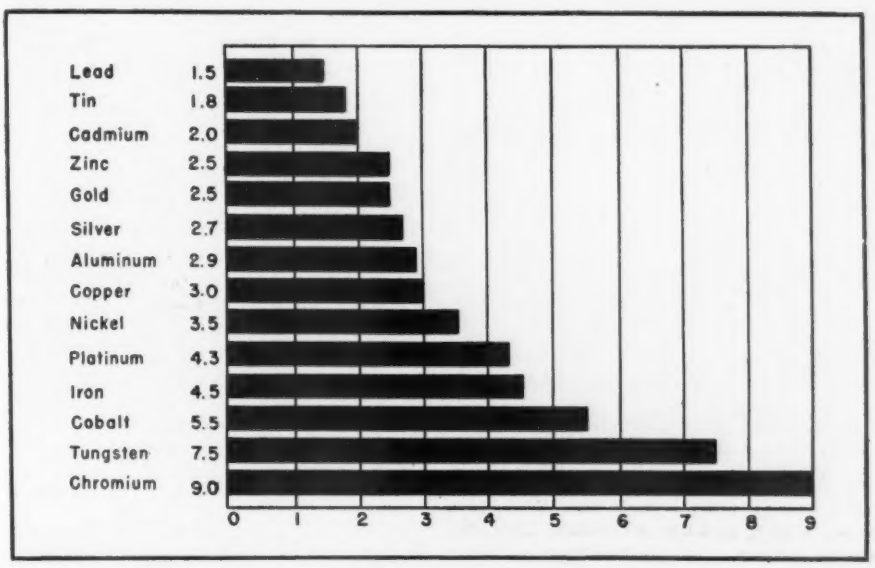

Fig. 1. Comparative hardness scale shows chromium to be twice as hard as iron. The above chart is based on the Moh scale of hardness.

By D. B. McPHERSON

CHROMIUM has long been known as one of the hardest metals in commercial use (Fig. 1). Yet when the subject of chromium plating is considered, the average man is inclined to think only of its application to automobiles and other types of bright or decorative work. The automobile industry has been responsible, to a large extent, for bringing this finish to the public eye. Here it met with instant success, principally because of its characteristic of retaining its original brilliance without polishing other than wiping with a damp cloth.

Until recent years, comparatively little had been heard of the infinitely more important applications of chromium plate for industrial purposes; viz., for protection against wear and corrosion. During the war years, chromium plating for ornamentation was banned by the government, so that valuable chemicals would be conserved. However, the value of chromium plating for prolonging life and for salvaging worn parts and hard-to-get metals was recognized as being so great that industrial chromium plating continued throughout the war. It has

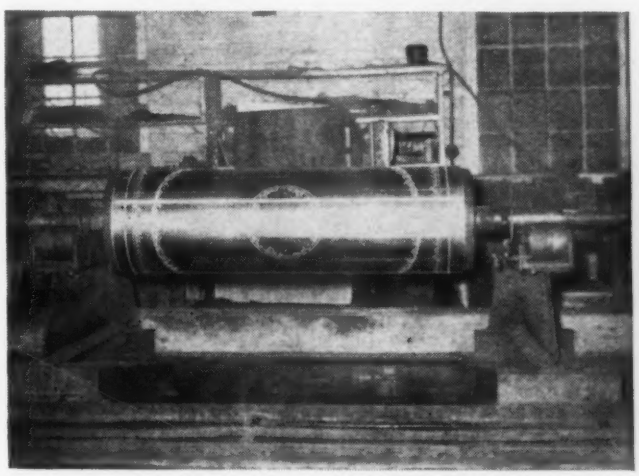

Fig. 2. Chrome-plated printing rolls do not scratch. When design finally shows wear, plating can be stripped and reapplied. Plated rolls usually give clearer patterns.

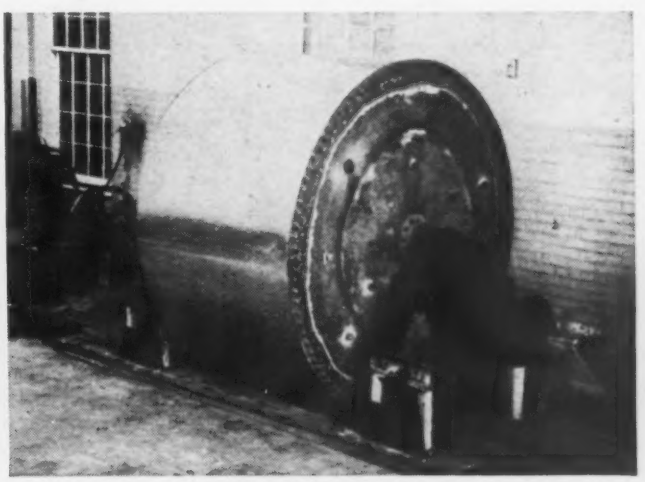

Fig. 3. Drying can, when chromium plated, has clean, non-tarnishing surface that provides long life, freedom from sticking or staining of cloth, and reduced steam consumption.

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PRODUCT *Chemical Formula; Molecular Weight*	HOOKER SPECIFICATIONS	SUGGESTED USES
Antimony Trichloride Anhydrous $SbCl_3$; 288.1	Antimony Trichloride..... 99% Min. Iron and Arsenic..... 1% Max. Lead..... 0%	Catalyst in organic synthesis; mordant in textile printing. Moisture and fireproofing textiles.
Benzal Chloride $C_6H_5CHCl_2$; 161.0	Clear, yellow liquid. Boiling Range..... 200 to 235°C Specific Gravity 15.5°/15.5°C..... 1.279 ± .005	Dyestuff intermediate.
Chloranisidine $NH_2C_6H_3ClOCH_3$; 157.5	Gray crystalline solid. Melting Point..... 79°C Min. Diazo Test..... Relatively clear.	Dyestuff intermediate.
Lauryl Pyridinium Chloride C_5H_5N ($C_{12.6}H_{26.2}$)Cl; 292.0	Mottled tan, semi-solid. Solubility in water is 60 gms. per 100 gms. of water. Alkyl Pyridinium Chloride (Calc. as C_{12}) ..... 85.0% Min.	Cationic detergent. Wetting and cleaning agent for textile fibers. As a leveling agent and color modifier in dyeing.
Monochlorbenzene C_6H_5Cl; 112.5	Clear, colorless liquid. Distillation Range..... 131.3 to 132.3°C	Dyestuff intermediate, preparation of sulfur black, brown dyes. Solvent.
Orthodichlorbenzene, Tech. $C_6H_4Cl_2$; 147	Clear, colorless liquid. Freezing Point..... −10° to −22°C Boiling Range..... 6° including 179°C	Manufacture of pyrocatechin, dye intermediates, other synthetic organic chemicals. Degreasing wool.
Phosgene (Carbonyl Chloride) $COCl_2$; 98.9	Colorless gas at ordinary temperatures. Does not discolor a 0.2% solution of KI when vigorously bubbled through it for one half hour. (Test for free chlorine)	Dye intermediate; chlorinating agent.
Sodium Sulfhydrate NaSH; 56.1	NaSH..... 70 to 72% Na_2S..... 1 to 2% Fe..... 5 ppm Max. NaCl..... 1% Max. Na_2SO, $NaHCO_3$..... 1% Max. Cu, Ni, Cr, Mn, Pb..... 1 ppm Max. Water of crystallization..... 28 to 26%	Desulfurizing rayon; calico printing; in sulfur dye baths.
Sodium Sulfide Na_2S; 78.1	Na_2S..... 60 to 62% Fe..... 8 ppm Max. NaCl..... 1.5% Max. Other Na Salts..... 2.0% Max. Cu, Ni, Cr, Mn, Pb..... 1 ppm Max. Water of crystallization..... 36.5 to 34.5%	Desulfurizing rayon; calico printing; in sulfur dye baths.

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been the means of saving millions of dollars worth of material which otherwise would have been scrapped. A great deal of this plating was done in connection with war work; but even today, many engineering and technical men who have not come into direct contact with the advantages of chromium plating still do not fully appreciate the possibilities of chromium as a wear-resisting and corrosion-resisting medium.

WEAR RESISTANCE. Prior to its application as an electrolytic plate, chromium was used principally as an alloy in the manufacture of special steels. Only in recent years has the commercial application of chromium plate been successfully made. Metallic chromium is about twice as hard as hardened steel, and is exceeded in hardness only by corundum, boron, and the diamond; this hardness makes it an ideal combatant of wear and abrasion. Chromium also has an exceptionally low friction coefficient, which allows reduced lubrication in many cases, higher speeds without heating, and prevents adhesion of liquids or solids to the surface.

Chromium is one of the most difficult metals to handle in electroplating. The evenness of the deposit is a matter of the most exacting control; the bonding of the chromium to the base metal calls for high technical knowledge. When coatings are applied with adequate knowledge and technique, chrome-plated machine parts represent a major economy.

Before any article is plated, careful consideration should be given as to whether it is to be plated primarily for appearance, to counteract wear, or to offset corrosion. Almost any metal can be chromium plated, but some metals require greater preparation than others. The base metal must be thoroughly clean and should be free from all pitting and similar defects. Scoring and pitting are not removed by chromium plating; these defects must be removed by machining, grinding, or plugging the base metal before plating.

The actual thickness of the chromium deposit varies considerably. A deposit of only 0.0005 in. will give good wear resistance in many cases; but for fairly heavy wear and corrosion resistance, a deposit of 0.004 to 0.006 in. is usual. In cases in which the part must withstand severe abrasion, the deposit may be considerably thicker. Care should be taken, however, because the extreme hardness of chromium also makes it brittle.

TEXTILE USES. The textile industry provides an outstanding example to show the advantage of chromium plating. The life of various types of rolls has been greatly extended, with increased efficiency.

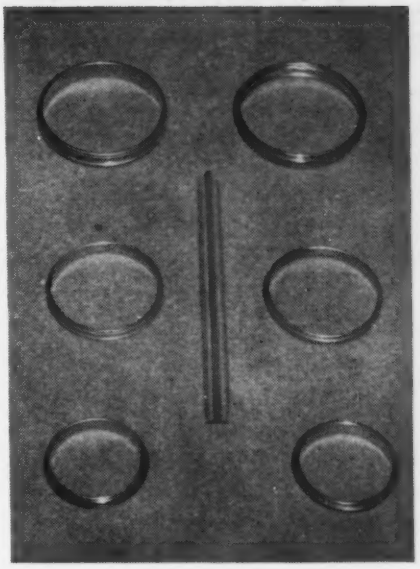

Fig. 4. Spinning and twister rings with a coating of 0.002 in. of chromium on inner surfaces decrease time required to bring frames up to speed.

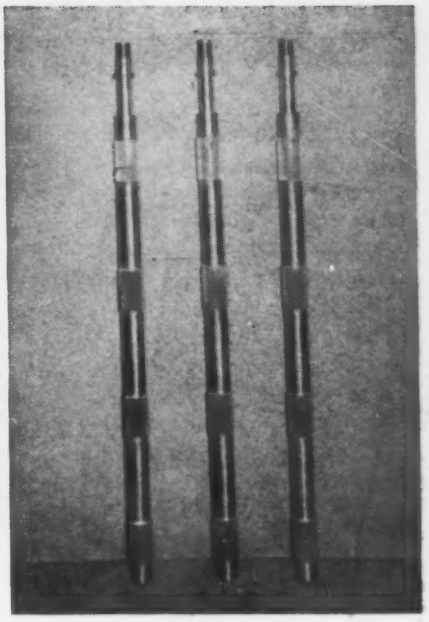

Fig. 5. Life of drawing rolls is increased by chrome plating the flutes.

After copper printing rolls, such as the one shown in Fig. 2, have been operated for some time, the sharpness of the original engraving is seriously affected, necessitating the removal of the rolls and re-engraving. Chromium plating of these rolls produces a real economy. In most cases, the designs are actually sharper and clearer when chromium plated; the life of the rolls is greatly extended because of the hardness of chromium, which also eliminates the hazard of scratches, etc.; the luster of the fabric is enhanced; and foreign substances are prevented from adhering to the surface of the rolls. When the chromium finally shows signs of wear, it can be stripped and the rolls re-plated, without necessitating expensive re-engraving.

Under normal operating conditions, chromium-plated Schreiner rolls have outworn five unplated-steel rolls without noticeable wear. Not only were the designs maintained, but they were afforded protection against moisture and the corrosion caused by temperature changes.

Drying cans (Fig. 3) and other equipment are greatly improved by chromium plating because chromium

(*Continued on page 206*)

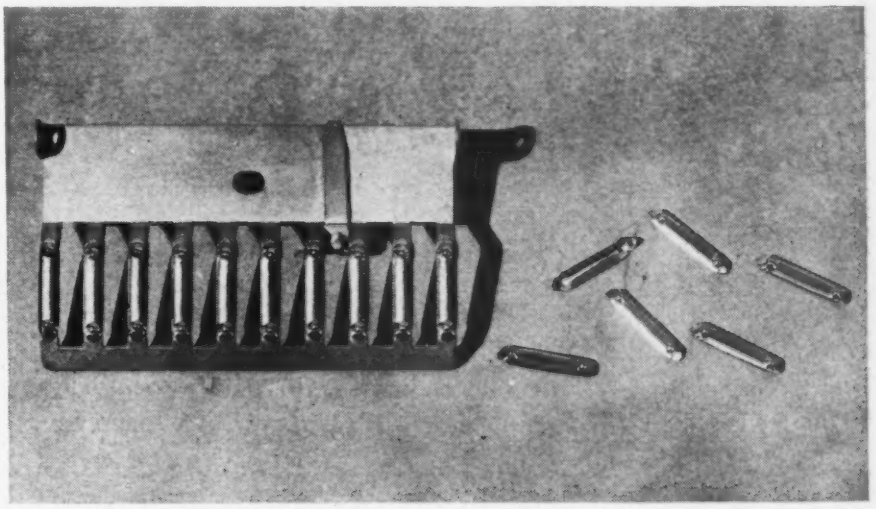

Fig. 6. Chrome-plated detachable wear members can be snapped onto fingers of gate-type tension devices.

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onyx CHEMICALS FOR DYEING AND FINISHING

Even the SIMPLE TERRY TOWEL Requires Considerable Calculation

HIGHLIGHTS: *Popular demand for stripes, colors, checks, florals, etc., involves terry weaver in complex mechanisms—Calculations are detailed for a simple, all-white, bordered towel—Dobby chain controls changes in weave—Special arrangement marks cutting line between unit towels.*

By T. HARGREAVES

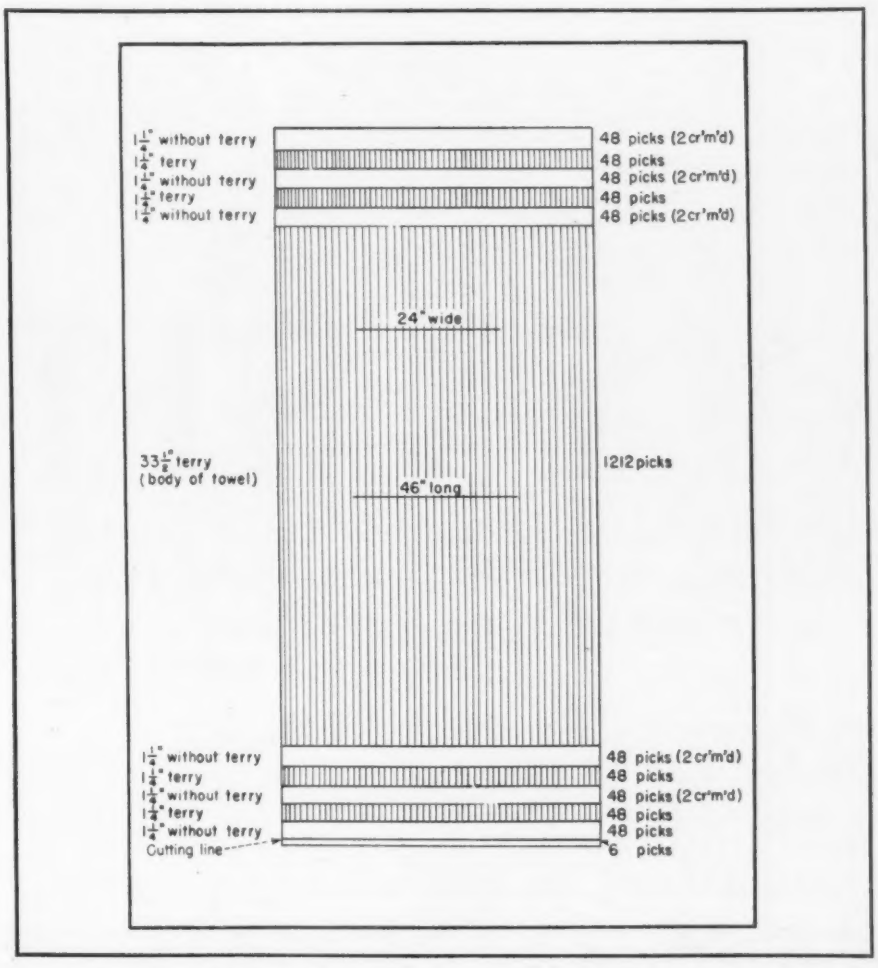

Fig. 1. Designed for simple bordered towel gives dimensions in inches on left side and picks on right.

TERRY CLOTHS in their simple form may be woven on cam looms equipped with 4-leaf cams and a terry motion. This simple mechanism is all that is required to produce plain terry towels. However, the public has introduced a factor that leads to complexity because of its constant demand for something different. This "something different" brings in fancy borders, reversible colors, checks, floral designs, etc.; and to accommodate this demand, the modern terry loom becomes a highly complex piece of machinery.

The C-5 loom made by Crompton & Knowles Loom Works embodies practically all the mechanisms necessary to satisfy the public demand for an immense variety of patterns. This loom, besides having provisions for two warp beams, the terry motion, and the positive let-off for the pile beam, is equipped with a 2-cylinder dobby (usually 20- or 24-leaf), multiple drop-boxes for four colors, capacity for large rolls of cloth, and a dobby head or box-indicator motion to synchronize and control the various mechanisms. The designs described herewith are arranged for weaving on the C-5 terry loom.

Design shown in Fig. 1 is for an all-white terry towel with simple borders at each end. This towel is to be 22 x 44 in. after bleaching and hemming. As the bleaching process will shrink the towel about 2 in. in width, it will be necessary to weave it 24 in. wide in the loom state, and also to allow 2 in. in length for hemming, which makes the towel 24 x 46 in. overall. A quality of 28 dents per inch in the reed and 36 picks per inch is selected. The pile warp is 1/16s, the ground warp 1/14s, and the filling 1/14s. The loop of the terry's to be 5 times—that is, 5 in. of pile warp in 1 in. of cloth. Width in reed, or yarn-spread to weave 24 in. wide loom-state cloth, will be about 26 in. Selvages are to consist of 32 threads at each side, from the ground warp. Therefore, a pile warp is needed of 712 ends of 16s lightly sized, and a ground warp of 776 ends of 14s strongly sized.

FACTOR OF SIX. In calculating the number of picks for each portion of Fig. 1, it is necessary that each be divisible by 6, or otherwise the loom will go "off pick" since the terry mo-

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tion needs six picks to complete the weave cycle. The 1¼-in. bands in the border, times 36 picks to the inch, equals 45 picks; but this must be increased to 48 to take care of the terry cycle, and also to allow for some extra picks per inch (crammed picks) that must be allowed each time the weave changes from without-terry to terry weave. Without this latter provision, an unsightly crack would show across the cloth at the junction of the two weaves. Usually in a border (such as is provided in this design) the take-up, or pick-gear mechanism, is prevented from operating for two picks, for which manipulation suitable mechanism is provided on the loom.

The drafting of the pile and ground threads is given in Fig. 2.

The next calculation is for a suitable let-off gear for the pile warp to give a 5-times loop and the reed opening to give that size loop, with 36 picks per inch in the cloth. The calculation has been explained in a previous article dealing with the terry motion and let-off gear. It can be found from the tables given there (page 121, T. W., Aug., 1946) that a 42-tooth let-off gear is needed, moving two teeth at each movement, and that the reed opening shall be 15/36 in., plus a further $\frac{1}{8}$ in. (approx.) for slippage; which totals about $\frac{5}{8}$ in.

TOWEL WEIGHT. The calculated weight of the total given in Fig. 4 assumes that counts of yarn used are correct. Should the counts be heavier or lighter, then the let-off gear must be changed accordingly if it is desired to maintain the weight-standard laid down. When the first towel has been woven, it should be checked for width, length, and weight, and minor adjustments made if necessary to comply with the standard desired by the mill.

Only one cylinder in the dobby is needed for this pattern, and the lifting plan for the heddles is given in Fig. 3. It is necessary, however, to build a pattern chain for the dobby head, or box-indicator motion. This pattern chain will operate all the various mechanisms in the loom; but in this particular pattern, it will be called upon to operate only two motions—the terry motion and pick-cramming motion. The chain must be built to operate the number of picks of the specified fabric as shown in Fig. 1, or 1,698 picks in each towel unit. In the six-picks cutting line, the middle two are to operate with terry motion in order to form a crack in the plain cloth to act as a guide in the subsequent cutting operation.

The dobby-head motion consists of two lengths of link chains which act as multipliers and eight indicator fingers which are operated by round disks or rollers threaded on iron rods and maintained in position by spacers. The two lengths of link chains which act as multipliers may be made any length to suit the designer. The multiplier link chain found at the right-hand side of the box chain is known as No. 1397 multiplier. The other, known as No. 1393 multiplier, will be at the left side of the box chain.

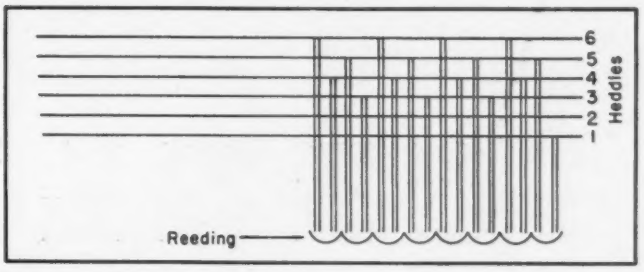
To build No. 1397 multiplier chain, five low links and one high link are used. Each link has a value of two picks (12 picks in all for the six links). The No. 1393 multiplier chain uses 22 high links and one low link. Each of these links is also valued at two picks in the cloth (46 picks in all for the 23 links). As long as only one of these multiplier link chains is in operation at a time, the pick values given above hold good. But if both chains are operated at the same time, the com-

Drafting of Pile and Ground Ends

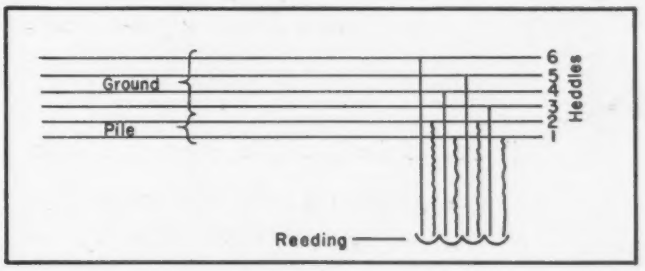
	Ground	Pile	Dents
32 ends selvage, drawn 2 ends in each heddle eye and 4 ends in each dent of the reed	32		8
712 Pile Ends / 712 Ground Ends — Drawn 1 end in each heddle eye and 2 ends in each dent of the reed. Drawn alternately 1 end pile and 1 end ground in the heddles and 1 end pile and 1 end ground in each dent of the reed	712	712	712
32 ends selvage, drawn as in other selvage	32		8
Total	776	712	728

728 dents divided by 28 dents per inch in reed = 26 in. yarn-spread in reed

32 ends from ground warp for selvage right hand side.



The 2 ends in No. 1 heddle act as a catch cord. For the left hand selvage these ends must be drawn on No. 1 heddle at the outside of the selvage.



Repeated all across from selvage to selvage.

Fig. 2. Ground could be woven on two heddles, but four as arranged above work better on a dobby loom. This eases the strain on the springs which pull down the heavily weighted ground yarn in these heddles.

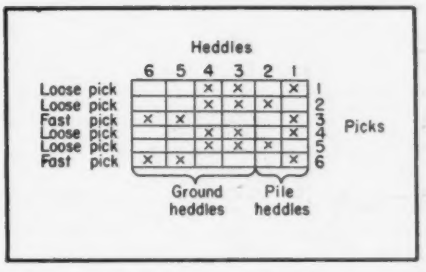


Fig. 3. Above draft shows lifting plan for heddles.

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General Sales Office: 122 East 42nd Street, New York 17, N. Y.

Plant and Principal Office: Fredericksburg, Va.

CEGLIN*

(alkali soluble cellulose ethers)

Finish for Textiles

Increases the Intrinsic Value of Fabrics

- **Provides a finish of distinguished character.**
- **Stands up under laundering.**
- **Adds tensile strength.**
- **Stabilizes shrinkage and stretching.**
- **Increases resistance to slippage or distortion.**
- **Makes possible a wide range from softness to crispness.**
- **Improves resistance to abrasion.**
- **Helpful in solving manufacturing problems.**

For additional information write for technical booklet giving complete directions on uses and application of Ceglin.

SYLVANIA TEXTILE FINISHES

* *Reg. U. S. Pat. Off.

bined pick value is equal to the least common multiple of the two combined pick values thus: $(46 \times 12) \div 2 = 276$ picks. Any combination may be used to suit the job to be done. The dobby chain for the towel here described is shown in Fig. 5.

DOBBY CHAIN. A roller under No. 1 indicator finger stops the terry motion from operating, and also the pile let-off, and produces plain cloth without terry. The absence of a roller produces terry cloth.

No. 2 indicator finger, when not operated by a roller, allows the take-up gears to function normally; but a roller underneath will retard the take-up and produce the crammed picks.

A roller under No. 3 will bring the third shuttle box from the top into operation. A roller under No. 4 will bring the second shuttle box from the top into operation. For the fourth box a roller is required under both Nos. 3 and 4 indicator fingers. No rollers at all under either Nos. 3 or 4 fingers will leave the first or top shuttle box in operation.

A roller under No. 5 finger will rock the outside cylinder of the dobby backward and forward on two bars of the dobby-cylinder pattern chain.

A roller under No. 7 will bring the inside cylinder of the dobby into operation. The absence of a roller under No. 7 finger brings the outside cylinder of the dobby into operation.

A roller under No. 6 indicator finger will cause the box chain to move one bar on every repeat of the pick value of No. 1393 multiplier link chain, in this case every 46 picks.

A roller under No. 8 finger will cause the box chain to move one bar on every repeat of the pick value of No. 1397 multiplier link chain, in this case every 12 picks.

If a roller be placed under both No. 6 and 8 figures, the box chain will move only one bar every 276 picks, which has been figured as the least common multiplier of the pick values of the two multiplier link chains.

The absence of rollers under both No. 6 and No. 8 fingers will move the box chain one bar every two picks.

These combinations form the basis of the calculations when building the pattern chain.

BUILDING THE CHAIN. The sketch at Fig. 1 gives the picks necessary for each portion of the towel, and the chain is built accordingly.

1. 48 picks without terry (last two picks to be crammed): No. 1393 indicator finger No. 6 will give 46 picks, so a roller is placed under it for one bar. The next two picks, which are to be crammed, are obtained by placing a roller on the next bar underneath finger No. 2 but no rollers under either of the multplier fingers. Both of these bars have to have a roller underneath finger No. 1 which gives plain cloth.
2. 48 picks terry: A roller under No. 1393 indicator finger No. 6 will give 46 picks. The two picks still required are obtained by one more bar without any rollers underneath the multiplier fingers; also no roller underneath finger No. 1 which gives the terry weave.
3. 48 picks without terry (last two picks to be crammed): This is a repeat of 1.
4. 48 picks terry: This is a repeat of 2.
5. 48 picks without terry (last two picks to be crammed): Again a repeat of 1.
6. 1,212 picks terry for body of towel: Four bars with rollers underneath both indicator fingers No. 6 and No. 8 equals 276 x 4, or 1,104 picks. Two bars with roller underneath finger No. 6 equals 46 x 2, or 92 picks. Eight bars without any rollers under either of the multiplier fingers equals 8 x 2, or 16 picks. All of which gives a total of 1,212 picks.
7. 48 picks without terry (last two picks to be crammed): Repeat 1.
8. 48 picks terry: Repeat 2.
9. 48 picks without terry (last two picks to be crammed): Repeat 1.
10. 48 picks terry: Repeat 2.
11. 48 picks without terry: Repeat first

(Continued on page 222)

Calculated Weight of 1 Doz. Towels

$\frac{712 \times 5 \times 38\frac{1}{2} \times 12}{840 \times 36 \times 16}$	= Weight of pile warp in terry portions of towels	3.40 lb.
$\frac{712 \times 7\frac{1}{2} \times 12 \times 105}{840 \times 36 \times 16 \times 100}$	= Weight of pile warp in plain portions of towels	0.14 lb.
$\frac{776 \times 46 \times 12 \times 105}{840 \times 36 \times 14 \times 100}$	= Weight of ground warp in towels	1.06 lb.
$\frac{26 \times 1698 \times 12}{840 \times 36 \times 14}$	= Weight of filling in towels	1.25 lb.
Total weigh in 1 doz. towels, yarn only		5.85 lb.
5% Size on 3.54 lb. pile yarn	=	0.18 lb.
20% Size on 1.06 lb. ground	=	0.21 lb.
Standard weight, 1 doz. towels loom state	=	6.24 lb.

After bleaching the towels, the weight will be reduced by about 12% which here equals 0.75 lbs.; and the towels should finish, after bleaching and hemming, 22 × 44 in., 5½ lb. per dozen.

Fig. 4 Weight of towel can be calculated from its construction data.

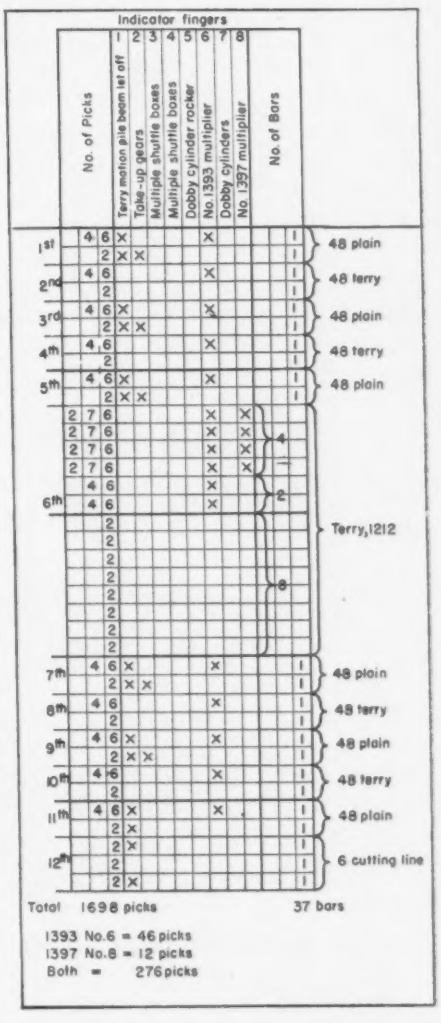


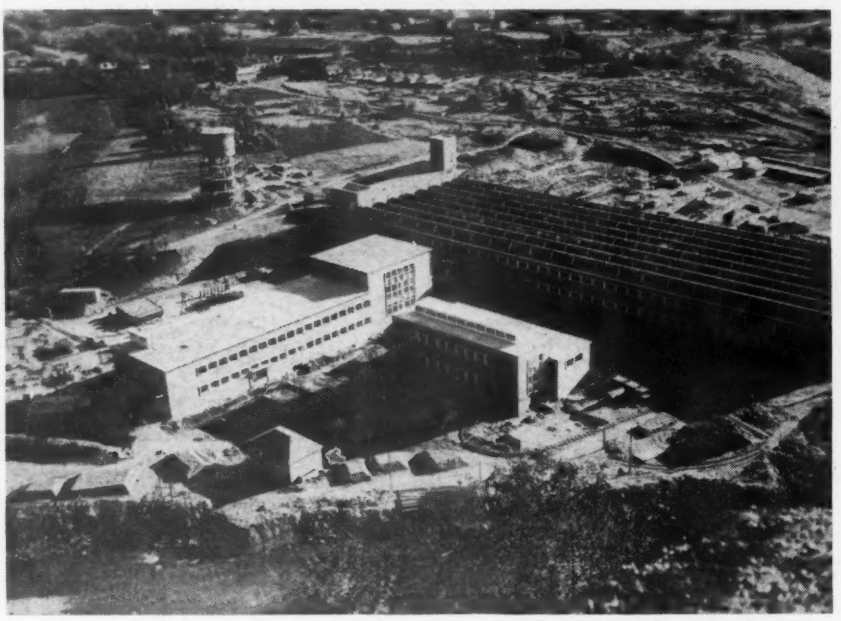
Fig. 5 Dobby chain is arranged as above to produce towel outlined in Fig. 1.

Rayon Plants by KOHORN

[No. 6 of a series of Kohorn Built Plants.]

This Plant Constructed in 1933

1919



1924

18 MONTHS FROM INCEPTION TO OPERATION

1935

We have designed, equipped and put into production complete rayon and staple fiber plants in 18 months from date of contract.

Only Kohorn's vast experience and up-to-date methods make it possible. Kohorn is at home in all parts of the world and is prepared to fully meet your requirements. Inquiries welcomed.

OSCAR KOHORN & CO., Ltd.
501 Fifth Avenue NEW YORK, N. Y.

1938

SERVICES RENDERED:

PLANT LOCATION:

(a) Survey on the ground to determine location, man-power, transportation, markets, raw material, power, fuel and water supplies.
(b) Determine size of initial plant, and plan its expansion.
(c) Consultation on types of yarn, denier, packaging, etc.
(d) Estimates for land and building, equipment, and working capital.
(e) Estimate production cost and overhead, sales and profit.

ERECTION OF BUILDINGS AND MACHINERY:

(a) Furnish complete plans for buildings and machinery.
(b) Supply all production machinery and auxiliary equipment.
(c) Send KOHORN engineers to erect plant, install machinery and building equipment.

STARTING PRODUCTION:

(a) KOHORN Chemists and Engineers, start the plant and bring it into full production.
(b) KOHORN experts help train local labor.
(c) Modern chemical and mechanical processes, installed by KOHORN hold consumption of raw material and labor to a minimum.
(d) KOHORN engineers co-operate with your sales department in introducing product to the market.

1945

PLANT EXPANSION:

(a) KOHORN'S interest in your plant after it is turned over to you, continues. Consultation always available.
(b) Our latest patents are put at your disposal when plant expansion is contemplated.

RESEARCH Must Be Applied Is Theme of TRI Meeting

HIGHLIGHTS: *Use in mill of research findings is stressed at annual meeting of Textile Research Institute — Drying studies show unreliability of moisture measurements and costs of infrared and high-frequency methods compared with steam — New theory points to cheap sources of cellulose for rayon — Research developed rayon-stabilization processes.*

NEW EMPHASIS on "translating the work of the research laboratory into practical application in mill operation" was evident at the annual meeting last month of the Textile Research Institute. The institute's president, Lewis Sanders, made a special point of this in his annual message to the board of directors.

"Reports, no matter how well done," he said, "are not adequate in translating the work of the research laboratory into operating-procedures." Dr. J. H. Dillon, who is director of research for both the TRI and the Textile Foundation, linked fundamental and applied research by pointing to the relationship between fundamental structures of fibers to creep, relaxation, and stress-strain curves found in tests. He also coupled studies in drying, in cellulose, and in sizing with practical applications.

William D. Appel, chairman of the TRI research advisory committee, emphasized the value of integrating all textile research. He spoke of integration in Sweden and of the $7,000,000 institute for textile research being established in India.

MANY SPEAKERS. In all, almost a score of speakers addressed the TRI group. All papers were brief, concise, and understandable. Pertinent points from them follow.

Examples of supplying industry with basic information of practical value were given by J. C. Whitwell, TRI associate director of research, in the work on moisture meters and on warp sizing. Tests are currently being made which should assist in ascertaining how reliable moisture meters can be considered to be for industrial work.

"The standard oven method of moisture analysis may give erroneous results," stated R. K. Toner, of Princeton University. "First, day-by-day variations of humidity within the room, and consequently of the oven air, cause variation in results; and second, some material other than water—for example, the oil in wools—may be removed during the heating process. Attempts have been made . . . recently to determine a method whereby the true moisture of a sample can be ascertained, so that meters might be calibrated against true values."

Three methods being tried to obtain true moisture content are: (1) vacuum drying over magnesium perchlorate: (2) use of chemically dried air; (3) direct measurement of water after it has been removed by distillation with solvents which are available; and (4) a chemical method involving the Karl Fischer reagent.

"Perhaps some day sufficient attention will be paid to the problems peculiar to textiles," Dr. Toner said, "so that an entirely new type of moisture meter may result." Conditions which will cause variations in reproducibility of instrument readings are: (1) quantity of the material being tested; (2) amount of pressure exerted on the sample; (3) variation of reading with time; (4) past history of the sample; (5) temperature; (6) differences in instruments; and (7) effect of impurities.

In this same connection of drying and moisture meters, G. T. Paul, of Princeton, said that infrared and high-frequency drying must have advantages to offset higher costs to make them preferable to steam-heat drying. Per million B.t.u., steam costs were given as 52¢ compared to $5.86 for infrared, based on steam-supply costs at 50¢ per thousand pounds and electricity at 2¢ per kilowatt-hour. For comparable B.t.u. output, high-frequency cost was given as probably over $50. However, considering efficiency in applying heat to cloth, the costs would be $2, $12, and $100 respectively for the three heat sources.

(Continued on page 220)

TRI Officers

H. Wickliffe Rose, chairman of board of directors
Lewis Sanders, president
A. G. Ashcroft, vice president
Robert R. West, treasurer
D. B. MacMaster, secretary

General view of commercial exhibits held in conjunction with TRI annual meeting.

RAYON REPORTS

Prepared Monthly by American Viscose Corporation, New York, N. Y. DECEMBER, 1946

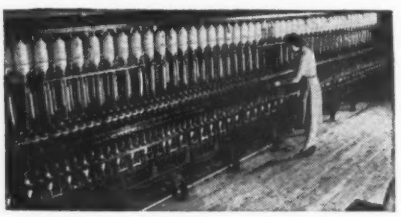
New Twister-Tube Package is Latest Aid to Acetate Rayon Customers

Adoption of the twister tube as a shipping package for acetate rayon yarn produced by American Viscose Corporation has just been announced. With new design features, the twister tube marks another step in the corporation's program to give its customers the most desirable packages for the particular needs of individual mills.

The new twister tube is built up with yarn that comes direct from the spinning machine, so that the filaments undergo no intermediate redrawing processes. In short, there are no guides or tensions through which the yarn must run as on a coning machine.

The package dimensions are: Length of tube, 7″; diameter empty, 2″; diameter with yarn, 4″; traverse of yarn, 6¼″. Each fully loaded tube carries two pounds of knotless yarn.

The twister tube has a transfer tail with the same amount of twist as the body yarn, assuring uniform twist at the transfer.



Spinning roving into yarn on a conventional cotton system spinning machine. It is one of a nearly complete line of full-scale textile machines on which experimental work is conducted at the American Viscose Textile Research Dept., Marcus Hook, Pa.

New Office in London for American Viscose Corporation

To provide a convenient headquarters for customers and company executives visiting British markets, American Viscose Corporation has just opened an office in the heart of London's West End, at 19 Sackville Street. James L. Truslow, overseas representative of American Viscose is in charge of the new office.

Three American Viscose Fellowships Study Test Methods for Rayon Fabrics

Three long-range fellowship study programs are now being sponsored by the American Viscose Corporation. Each of the fellowships is attacking problems of measuring more accurately the characteristics of rayon fabrics.

As a part of the overall research program constantly pressed by the corporation to improve end uses of rayon for the benefit of the rayon trade, the fellowships are as follows:

Ellen H. Richards Institute of Pennsylvania State College: Accelerated wear tests for apparel fabrics, and wearing performance compared with laboratory test performance, of 206 fabrics, with eighteen variables as to laundering, ironing and testing, for each.

Lowell Textile Institute: New test methods for determining fabric stability and resistance to perspiration.

American Institute of Laundering: Influence of various laundering procedures on rayon shirts, and establishment of practical recommended laundering procedures.

RAYON...20 YEARS AGO

With rayon firmly established in 1926 in third place among the world's textile fibers, 1927 really looks like rayon's all-time boom year!

The importance of rayon in blends is shown by Britain's October exports of rayon and wool mixtures—156,981 sq. yds., roughly the area of Manhattan.

The "eye appeal" of rayon in knit goods is a proved arouser of consumer interest, declares a spokesman for a group of knit goods manufacturers.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn or fiber.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN"* TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Offices: 350 Fifth Avenue, New York 1, N.Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.; Washington, D. C.; Wilmington, Del.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*Reg. U. S. Pat. Off.

CROWN TESTED

ADV.

Loomfixers' MANUAL

WOOL SECTION—Chapter XVIII (Cont.)

AUTOMATIC FILLING MOTION

By EUGENE P. SCHREMP

THE THREAD CUTTER may be adjusted easily by following a definite routine. Place a shuttle with bobbin in the magazine side of the loom. Pull the filling out of the shuttle and hold it tight to determine the height of the stand. Raise or lower the stand, Fig. W-49, until the tight end of the filling will come to the center of the opening of the blades as the lay moves to front center. Loosen the top arm on the shaft and adjust so that there is ¼-in. clearance between the front arm and the box back with the lay at front center. Push the lay back and the cutter forward. Set the opening of the blade by adjusting the swivel collar on the upright connector. If the blade is opened too far, it will not close when the cutter is pulled back. Always make sure that the blade is closed, otherwise it will cut the filling end.

CUTTING-BLADE TENSION. Tension of the cutting blade may be changed by adjusting the screw which changes the pressure on the tension spring. Fig. W-49. Dull blades may be sharpened in the same manner as a pair of scissors. The fiber thread holder should be replaced if it becomes chipped, as there is danger of the filling catching on it and causing runners. When the fiber does not hold the end of the filling, the leaf spring may be bent slightly to increase the pressure. After adjustments have been made, it is good practice to have the magazine transfer a number of times to make sure that it is operating properly. Sometimes the cutter may work properly for a few changes and then miss one or two bobbins. In some cases the filling may catch on the binder and cause it to lift out of the path of the cutter. In this case, the cutter may be set properly but still miss the filling end. To remedy this condition, make sure that there are no rough places on the shuttle for the filling to catch. Increasing the brush tension on the bobbin in the shuttle may also help to hold the filling in its proper position.

The thread cutter and revoker must be adjusted properly, otherwise serious fabric imperfections and loom breakage will result. If the cutter does not cut and also not hold the filling end, the end will be woven into the fabric, causing double picks or runners. If the revoker is not adjusted to revoke properly, broken bobbins, shuttles, or magazine parts may result, as well as warp smashes.

When operating properly, the cutter should cut the end of the filling on the bobbin which is to be changed, allowing the empty bobbin to pull the filling end out of the shuttle as it drops into the bobbin can. Bobbin cans must be emptied frequently so that the bobbin will have a considerable drop and pull all of the yarn out of the shuttle. If there is not sufficient reserve yarn on the bobbin and it runs out before the bobbin drops in the can, there is danger of a short end being left in the eye of the shuttle and being carried into the fabric. Usually this imperfection will be noticed in the fabric on the side opposite from the magazine.

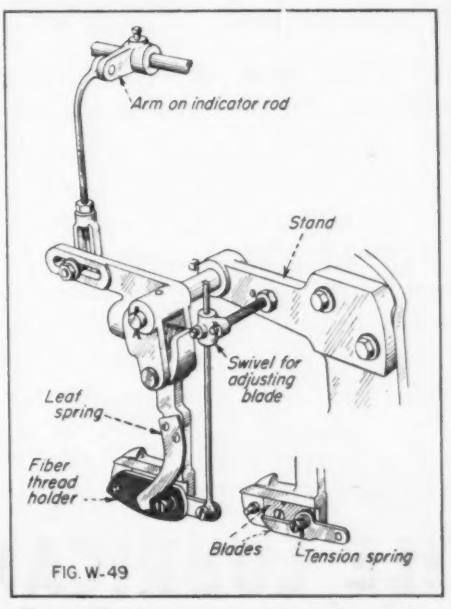
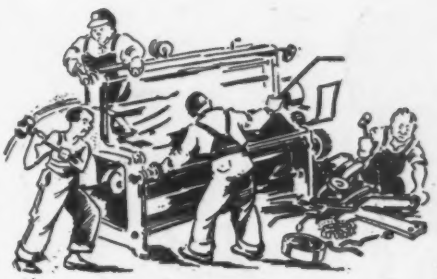


Fig. W-49. Thread cutter and revoker mechanism for a C & K automatic magazine.

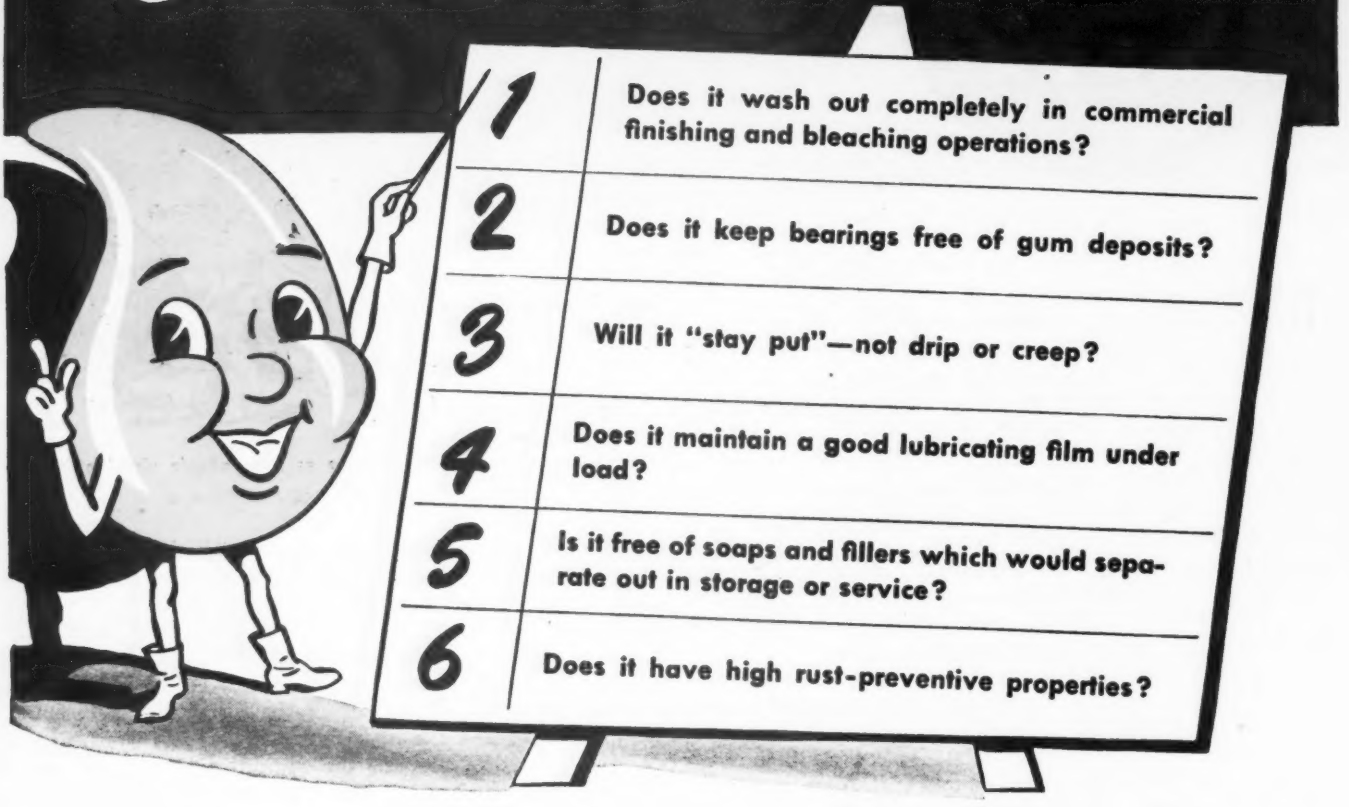


Loomfixing as some people visualize it!

SETTING THE CUTTER. As the cutter blade of the thread cutter closes, it should catch the filling end between the fiber thread holder and the blade, holding the end until the blade opens at the next transfer. The other end of the filling will be cut by the temple cutter after weaving a few picks. When all these parts are operating properly there will be two ends projecting from the fabric about ⅜ in. at each transfer. If there is only one end, it is usually because the cutter is not operating and there will be a double pick. Three ends showing may be caused by the cutter not cutting, and the fiber holding the yarn so that when the shuttle returns there are two ends held instead of one. A weaver should watch and report to the fixer when the fabric does not have two ends showing.

Different kinds of yarn may require different settings of the cutter. A very heavy yarn may drop on the race plate, making it necessary to lower the stand so that the blade will engage the filling end. This is especially true when little or no tension is used in the shuttle. When fine filling is used with considerable tension, it may be necessary to raise the stand so that the yarn will not lift over the blade and miss the knife. The stand may be raised or lowered by loosening the two capscrews. Slots in the stand permit it to be adjusted.

6 IMPORTANT QUESTIONS TO ASK ABOUT YOUR SADDLE AND TOP ROLL OIL


1 Does it wash out completely in commercial finishing and bleaching operations?
2 Does it keep bearings free of gum deposits?
3 Will it "stay put"—not drip or creep?
4 Does it maintain a good lubricating film under load?
5 Is it free of soaps and fillers which would separate out in storage or service?
6 Does it have high rust-preventive properties?

THERE'S A SHELL TEXTILIS OIL FOR TOP ROLLS AND SADDLES

IF YOU CAN ANSWER "YES" to all six questions, you have an excellent saddle and top-roll oil, and the chances are it is a Shell Textilis Oil!

If the oil you now use doesn't measure up, it will certainly pay you to investigate Shell Textilis Oils. Compounded from solvent-extracted mineral oils and special fatty materials, these oils offer amazing washability. Moreover, their cohesive properties are secured by extra care in refining—a method which eliminates the need for soaps or fillers to prevent dripping or creeping.

* * *

The Shell Lubrication Engineer will gladly give you specific advice on the lubrication of any type twisting frame or spinning frame. For informative literature about textile machine lubrication write Shell Oil Company, Incorporated, 50 West 50th St., N. Y. 20, New York; or 100 Bush St., San Francisco 6, Calif.

SHELL TEXTILE LUBRICANTS

SHELL

TEXTILE Equipment NEWS

Continuous-Fulling Mill Gives Increased Output

A continuous-fulling mill has been announced by James Hunter Machine Co., North Adams, Mass. Now undergoing final tests at Wyandotte Worsted Co., Pittsfield, Mass., the new machine will be available late this year. Its advantages over conventional fulling mills are reported to be more uniform fulling, greater productivity, less likelihood of forming fulling wrinkles, elimination of tangling problems, and uniformity of fulling unaffected by length of cuts.

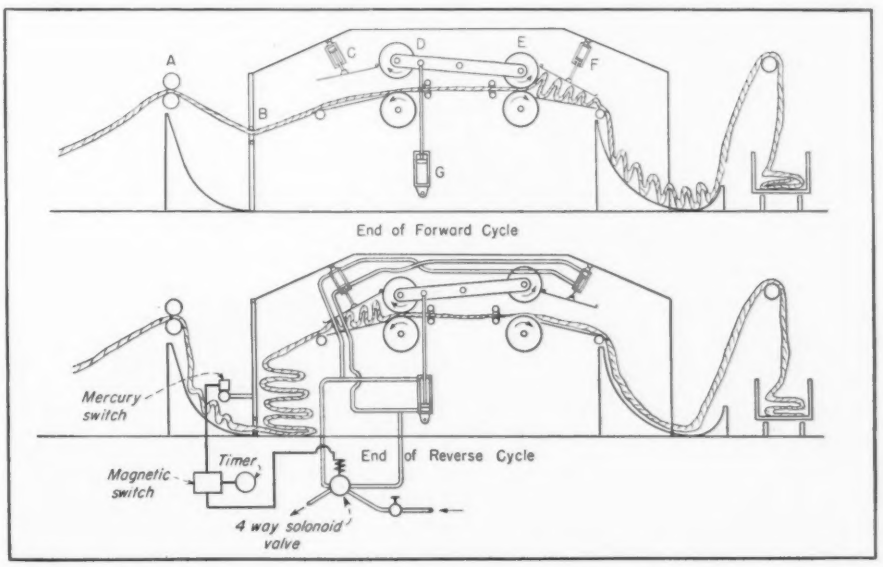
The working part of the mill is composed of two sets of fulling rolls which turn in opposite directions. The bottom roll of each pair turns about a fixed axis; the top rolls are mounted on a pivoted beam whose fulcrum is sufficiently high to prevent both sets of rolls from engaging simultaneously. Pneumatic cylinders are employed to actuate the traps and to pivot the top-roll beam so that one or the other pair of rolls grips the cloth. Both sets of rolls operate at surface speeds of about 200 yd. per min.

To begin operation, the first piece to be fulled is tacked to a leader and other pieces are tacked on in succession. The first piece is fed through the machine and into the scray. As soon as the first piece is completely in the scray, the forward-and-reverse fulling action begins.

Pot eye *B* shown in drawing is free to move up and down on guides. When the cloth has come to the end of the forward run, the pot eye jumps upward, actuating a lever and closing a mercury switch. The closing of the mercury switch energizes the holding coil of a magnetic switch which, in turn, operates a solenoid four-way air-control valve. The four-way valve then admits air to the top of beam piston *G*, the top of trap piston *C*, the bottom of trap piston *F*, and vents the other sides of the three pistons. Trap *C* closes and rolls *D* come together; rolls *E* and trap *F* open. The reverse cycle then begins, and fulling rolls *D* pull the cloth back into the feed end of the machine.

Attached to the magnetic switch is an automatic timer which operates to keep the reverse-cycle circuit energized for about 30 sec. When the timer releases the magnetic switch at the end of the reverse cycle, the solenoid valve is released and air is admitted to the opposite sides of the three pistons, reversing the roll and trap positions and starting another forward cycle.

During the reverse cycle, rolls *A* continue to feed cloth into the machine at the rate required by the particular fabric and amount of fulling desired. The forward cycle, when in motion, continues until all the cloth brought back by the reverse cycle plus that fed in by rolls *A* has been pulled through fulling rolls *E*. The tautening of the cloth then raises the pot eye and again sets the reversing mechanism into motion.



Continuous-fulling mill utilizes two pairs of fulling rolls to achieve forward-and-reverse action. More uniform fulling is reported to result from automatic operation. (Hunter)

It is said that one man can tend one of the new mills when running eight strings of cloth with short fulling time; one operator can reportedly operate two mills when running fabrics requiring longer fulling.

The manufacturer estimates the new machine to be practical for any mill producing 24 or more pieces per day of each type.

Cathode-Ray Oscillograph For Machine-Timing Study

A polar-coordinate cathode-ray oscillograph for use in studying the operation of machinery has been developed by Allen B. Du Mont Laboratories, Inc., Passaic, N. J. On the screen is produced a diagram in which a complete cycle of the machine is represented by 360° on the cathode-ray tube pattern.

A small two-phase alternator attached to the driving shaft is designed to synchronize the pattern with the rotating machine at any speed and to enable correct timing of the operations to be studied. Synchronization is also reported to permit quick analysis of any erratic operation of the machine.

Electric signals for the cathode-ray tube can reputedly be obtained from any of the different operations of a machine. The signals may produce either a radial deflection or a light-intensity variation of the cathode-ray circle and may be generated by a variety of pick-up devices, including photocells, vibration pick ups, microphones, microswitches, potentiometers, etc.

Alexander Smith & Sons Carpet Co., Inc., Yonkers, N. Y. is using an oscillograph in its research unit to study loom operation.

Filling-Bobbin Cleaner Attaches to Loom

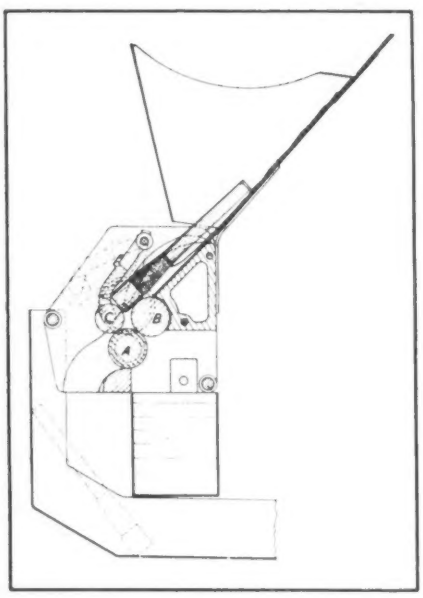
An automatic filling-bobbin cleaner to be attached to looms has been announced by E. Gordon Whiteley, Morley, England. The device is designed

to be affixed to the magazine end of the loom in approximately the same position as that ordinarily occupied by the quill can.

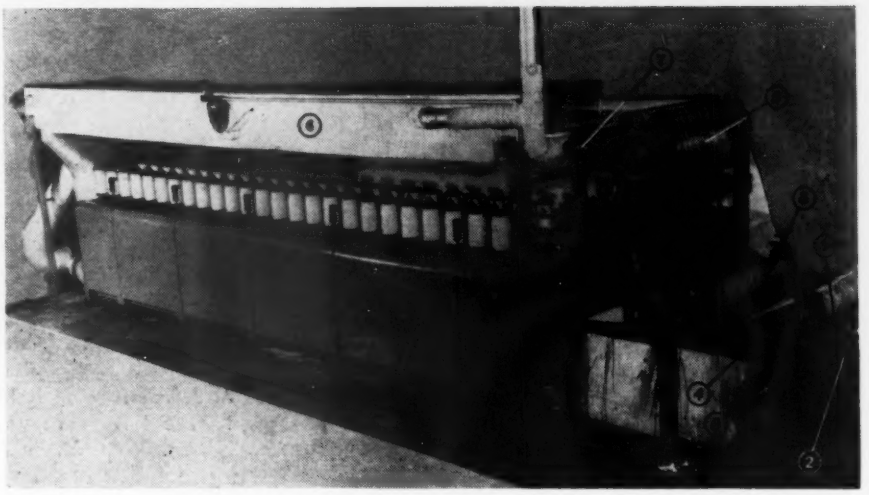
A sheet-metal, funnel-shaped hopper catches ejected bobbins and guides them, butt first, into a channel leading to the cleaning mechanism. In the channel, each bobbin is temporarily arrested by roll C (see cut). At intervals, C is raised by the action of an eccentric, allowing the bobbin to fall into the chute below roll A, as illustrated by dotted lines. The end of yarn is caught between rotating rolls A and B and is unwound from the bobbin.

The device is said to be so constructed as to prevent the yarn from sticking or lapping on the rolls. The unwound yarn is guided through an inclined chute into an outside receptacle.

Power to operate the unit is taken from the loom camshaft through V-belt pulleys.



Automatic filling-bobbin cleaner for attachment to looms takes power from camshaft. (Whiteley)



New 50-end "Fiber Bonded" machine is designed to permit volume production of plastic-impregnated yarns and roving. (Walter Kidde)

New 50-End Machine For "Fiber Bonded" Process

Volume production through increased machine capacity has been attained for the "Fiber Bonded" process, it has been announced by Dan River Mills, Inc., Danville, Va. A new 50-end treating machine is now in commercial production by Walter Kidde & Co., Belleville, N. J. Operation of the new machine is described as follows:

From any conventional creel, individual ends are led through an eyeboard to a positively driven set of rolls, 1, and immersed in a treating bath. The untensioned yarn is led to a second set of positively driven rolls 3, moving sufficiently slower than rolls 1 to facilitate slackening and thorough penetration of the treating material or bonding agents, and is immersed again in a treating bath 4. The traveling yarn is stretched between rolls 3 and 5 to just short of the breaking point. To prevent slippage, guide rolls are arranged to give maximum periphery contact in the V-grooves of the positively driven rolls.

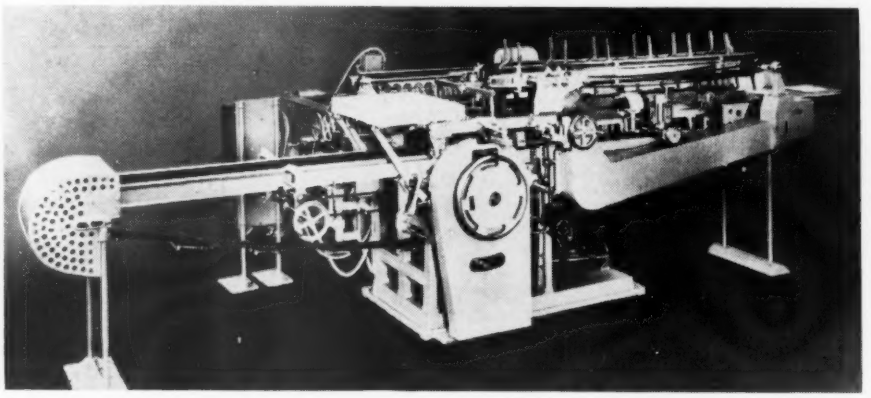
The stretched yarn is carried twice through hot-air drying chamber 6 before being carried over positively driven roll 7 which runs at a slightly higher speed than roll 5, thus taking out the stretch resulting from drying. The moving yarn is led from the guide rolls to individual take-up spools, all operating on slip clutches. A single cam and traversing carriage operate the winding on all 50 spools.

Variations in tensioning and compression zones can be arranged to meet the requirements on specific types of yarns, roving, and sliver, it is reported.

Machine Wraps Packages At Speed of 45 Per Min.

A machine developed especially for wrapping textile products and reported to be quickly adjustable for a wide range of sizes has been announced by Package Machinery Co., Springfield 7, Mass. Practically any type of wrapping material can be used, including paper, glassine, cellophane, acetate, and waxed paper; and material can be either plain or printed it is stated. An electric-eye device is provided for locating the printed design accurately. The machine, designated FA-2T, can be equipped with a labeling attachment for applying either inside or outside labels.

The machine wraps 45 packages per min., with one operator required. In operation, items to be wrapped are placed on cardboard; the machine applies the wrapping, then seals the seam and end folds. Both electric heat sealers and glue daubers are provided. Range of package sizes which can be accommodated is: $4\frac{1}{4}$ to 12 in. length, 3 to $7\frac{3}{8}$ in. width, and $\frac{1}{8}$ to $1\frac{1}{2}$ in. height.

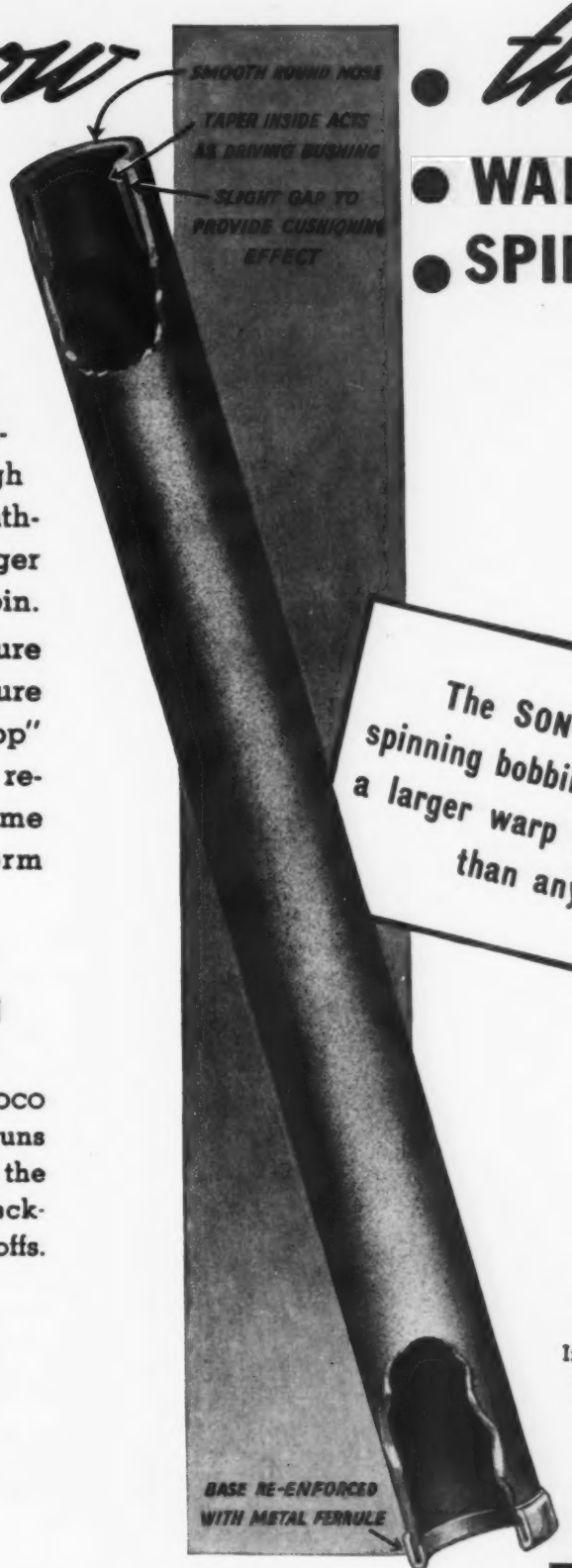


Package-wrapping machine uses almost any wrapping material; electric eye locates printed design. (Package Mchy.)

FOR MILL MEN —

Who Know • *their*

• WARP
• SPINNING


SMOOTH ROUND NOSE
TAPER INSIDE ACTS AS DRIVING BUSHING
SLIGHT GAP TO PROVIDE CUSHIONING EFFECT
BASE RE-ENFORCED WITH METAL FERRULE

The SONOCO warp spinning bobbin permits a larger warp package than any other.

SONOCO has developed a new *straight-side* paper warp spinning bobbin based on the approved engineering principle of "top-drive" for high speeds without vibration, and the mathematical certainty of building a larger warp package on a straight-side bobbin.

The exclusive "cushion grip" feature is an integral part of the bobbin structure which provides the "drive from the top" principle widely approved for best results in high speed spinning. This same "cushion grip" also permits uniform seating and easy doffing.

MINUTE SAVINGS PER SPINDLE BECOME VERY IMPORTANT WHEN MULTIPLIED BY THOUSANDS

Mill run tests have shown that the SONOCO *straight-side* paper warp spinning bobbin runs at high speed with fewer ends down, and the *straight sides* obviously provide a larger package which lengthens the time between doffs.

The *straight-side* principle obviates the need for corrugations to hold the traverse length in the primary winding, making it easy to strip the bobbin.

Inquiries regarding further details and mill tests are invited.

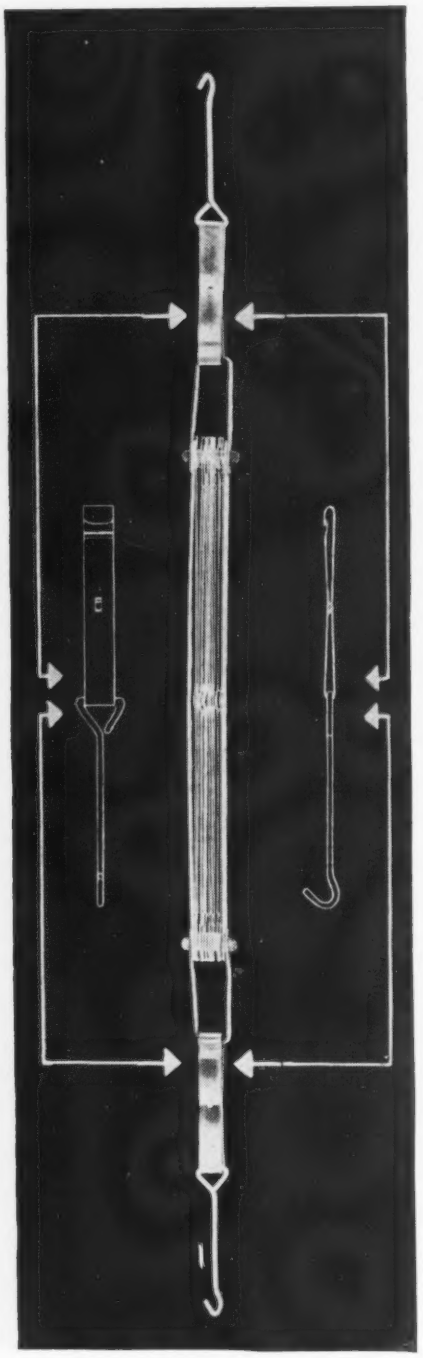
SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

sonoco SERVES THE WORLD PAPER CARRIERS

Selvage Strap Hook Made in One Piece



Selvage strap hook made of tempered steel is plated for rust resistance. (Steel Heddle)

An improved selvage strap hook has been announced by Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia 32. Although the new strap hook has been designed around the manufacturer's hook introduced years ago, several very important engineered improvements have been added, it is stated, thereby giving the hook greater strength and permitting speedier adjustment.

The new Model 3 selvage strap hook is made of one piece of tempered steel; is plated for rust resistance; and is interlocked at the receiving end with a strong tension, but reputedly not so strong as to make it difficult for the operator to press in the tongue, thereby disengaging the clamping mechanism.

The round-wire hook is slipped over the strap and retained at its extreme end. The hook is said to give the strap full bearing; there is neither catching nor rivet to come loose. Straps are made in 3-in lengths.

Overfeed Pin Tenter Operates 90 Yd. Per Min.

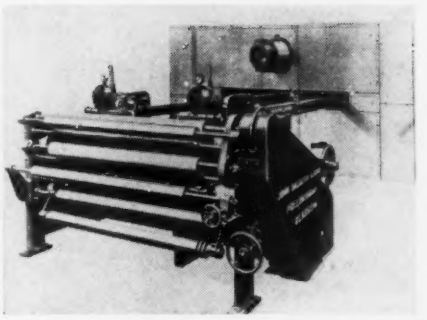
A new pin tenter developed in Scotland by John Dalglish & Sons is to be manufactured in America by Proctor & Schwartz, Inc., Seventh St. & Tabor Rd., Philadelphia. The new tenter, according to reports, is especially applicable to the finishing of resin-treated fabrics, particularly rayons, nylons, and silks in spun, crepe, and locknit forms.

One of the features of the Dalglish tenter which is reputed to make it desirable for use in finishing resin-treated fabrics is the overfeed mechanism, which is designed to permit the fabric to be fed regularly and loosely onto the pins and to allow warp shrinkage during the drying operation. The amount of shrinkage can be adjusted by a handwheel arrangement. An automatic hydraulic cloth guider is designed to direct even the most difficult fabrics onto the pins with great accuracy at high cloth speeds; at the same time, it is said to maintain a lightness and evenness of cloth tension which is impossible to achieve by hand feed, and to permit operating speeds up to 80 or 90 yd. per min.

The entering roller frame at the feed end of the tenter, with its opening scrolls, is reported to present the fabrics free from creases and with even selvages to the action of the guiders and overfeed mechanism. Selvage uncurlers at the feed end are designed to remove any curls from selvages and present them flat for the pinning-on operation.

At the delivery end of the machine, cloth may be batched or plaited down. If cloth is to be batched, the machine is equipped with an electrical constant-tension batching device said to assure an even tension throughout the growth of the batch, and to be easily adjusted to any desired tension.

Drying is reputed to be very even throughout, achieved by heated air at high velocity impinged against the cloth from above and below. By means of a speed control, speed of drying can be controlled to prevent over-dried or damp cloth. A complete control board mounted within easy reach of the operator is reported to make possible immediate control of all phases of the tenter's operation. The board also contains an electric speedometer marked in yards per minute and the adjusting features of the automatic speed control.

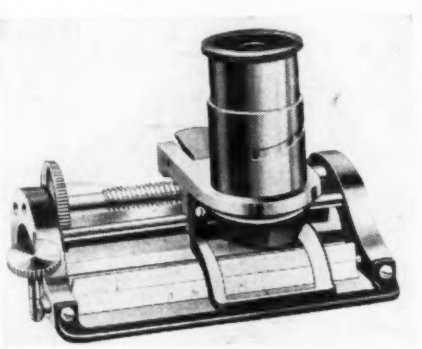


Automatic cloth guiders and automatic speed control are features of new Dalglish overfeed pin tenter. (Proctor & Schwartz)

Micrometer Pick Glass Offers Five Scales

A micrometer-screw pick glass, off the market for five years, is again in production, it has been announced by Charles Lowinson, 475 Fifth Ave., New York 17. The new model has five counting scales, as follows: one inch divided into quarters, one inch divided into tenths, linen measure, ligne measure, and millimeter measure. The desired scale can be selected by turning a thumb screw at the end of the frame. The lens provides 12.5-power magnification.

Three silver reflectors mounted on the instrument are designed to afford a lighted field directly under and traveling with the lens. A disengaging lever permits the carriage to be returned to the starting point on the scale without necessity for reversing the operating screw.



Micrometer-screw pick counter provides 12.5-power magnification and offers five scales for measurement. (Lowinson)

NALEX is a worsted warp sizing starch that greatly increases the tensile strength of worsted yarns. It has increased weaving efficiency in leading mills from 10% to 15% — over ordinary warp sizing.

Why? NALEX has eliminated many operating difficulties with its chemically controlled viscosity and cohesiveness. The vagaries of nature — the caprices of weather and soil so often reflected in less fully processed warp sizes — have been refined out of NALEX.

— as a result, NALEX sizes with greater uniformity . . . penetrates deeper . . . adheres all loose fibers securely . . . and forms a strong, smooth continuous film on the yarns to attain maximum elasticity — and greatly reduce warp breakages.

NALEX is colorless, nearly transparent. It retains the full depth of shade in bright colored yarns. It is also being widely used for fine combed cotton yarns, carded cotton yarns as well as worsted yarns of all types.

NALEX is readily available at savings from $500 to $1,000 a carload over ordinary warp sizes. Ask for a trial demonstration. A National technician can run off a few beams without upsetting your regular production.

National also produces: KOVAT, a cold water swelling gum for all textile printing; FLOJEL, uniform, thin boiling corn starches in all standard fluidities; HOOSIER Pearl Cornstarch; FIBERTEX for textile finishing; and AMBERTEX, a heavy-bodied thickener for white discharge, direct and vat color printing.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Chicago, Indianapolis, San Francisco and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto. In Holland: Nationale Zetmeelindustrie, N. V., Veendam.

Dunellen Plant

National
STARCH PRODUCTS

STARCHES — *AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY*

Dyes & Chemicals — PRODUCTS & PROCESSES

Shrinkproofing Agent Improves Wool Strength

KOLOC; United States Rubber Co., Naugatuck Chemical Div., Naugatuck, Conn.

Koloc, a new synthetic chemical reported to provide a mechanical means for greatly reducing the shrinkage and felting of wool, has been announced by United States Rubber Co. In addition to shrinkage resistance, Koloc-treated wool fabrics generally show a marked improvement in strength and durability, it is stated. The new material is said to be fast to washing and dry cleaning, thus permitting its effects to be retained throughout the life of the fabric.

Application of Koloc is reported to be simple and flexible. It may be applied either before or after dyeing; and because it is "wet set," it does not require drying of the fabric before proceeding with other wet-finishing operations.

Vinyl Butyral Stain-Proofs Fabrics

VINYL-BUTYRAL PLASTIC: Monsanto Chemical Co., Springfield, Mass.

Vinyl-butyral plastic, long used as an interlayer material in safety glass, has been developed for use as a textile coating material, it has been announced by Monsanto Chemical Co. Described as making possible such items as stain-proof tablecloths, furniture slipcovers immune to ink, and draperies that can be wiped clean with a damp cloth, the plastic is in sharp contrast with rubberized- or oilcloth-type coatings, it is said, because it allows a fabric to retain its original identity with most of the eye and touch appeal of a normal fabric.

In the application process, which can be carried out on existing coating machinery, there is bonded to the fabric a super-thin, almost-invisible coating of flexible and transparent vinyl butyral, reputedly so tightly adhering that it will not chip or peel under normal usage. The treated fabrics reputedly will stand up under repeated launderings and can be pressed on the untreated side with a moderate iron.

Fire Retardants Are Non-Irritating

FIRE RETARDANTS "CM" and "T"; E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

Fire Retardant "CM" and Fire Retardant "T", both consisting of ammonium sulfonate and each recommended for particular circumstances, have been announced by Du Pont. They are removed by laundering or exposure to conditions of water leaching, but not by the common dry-cleaning solvents, it is reported; and articles so treated do not irritate the skin.

Three methods may be employed to apply the fire retardants: immersion, spray, or brush. In any of these methods, the amount of fire retardant retained by the material should generally be no less than 10% by weight. Cotton, silk, viscose rayon, wool, and mixtures of these are said to be easily flameproofed with little or no change in feel, draping, appearance, or strength.

In a flame, treated fabrics are said to char and disintegrate.

Mill Maintenance

Thaw Frozen Pipes With Electric Welders

Frozen water pipes have been thawed at a number of plants by the use of electric welding equipment, according to information released by General Electric Co. No special equipment is needed except reliable pipe clamps for making firm electrical connections. Strap clamps of copper are best for this purpose, although C-clamps may be used to clamp cable terminals directly to the pipe where necessary.

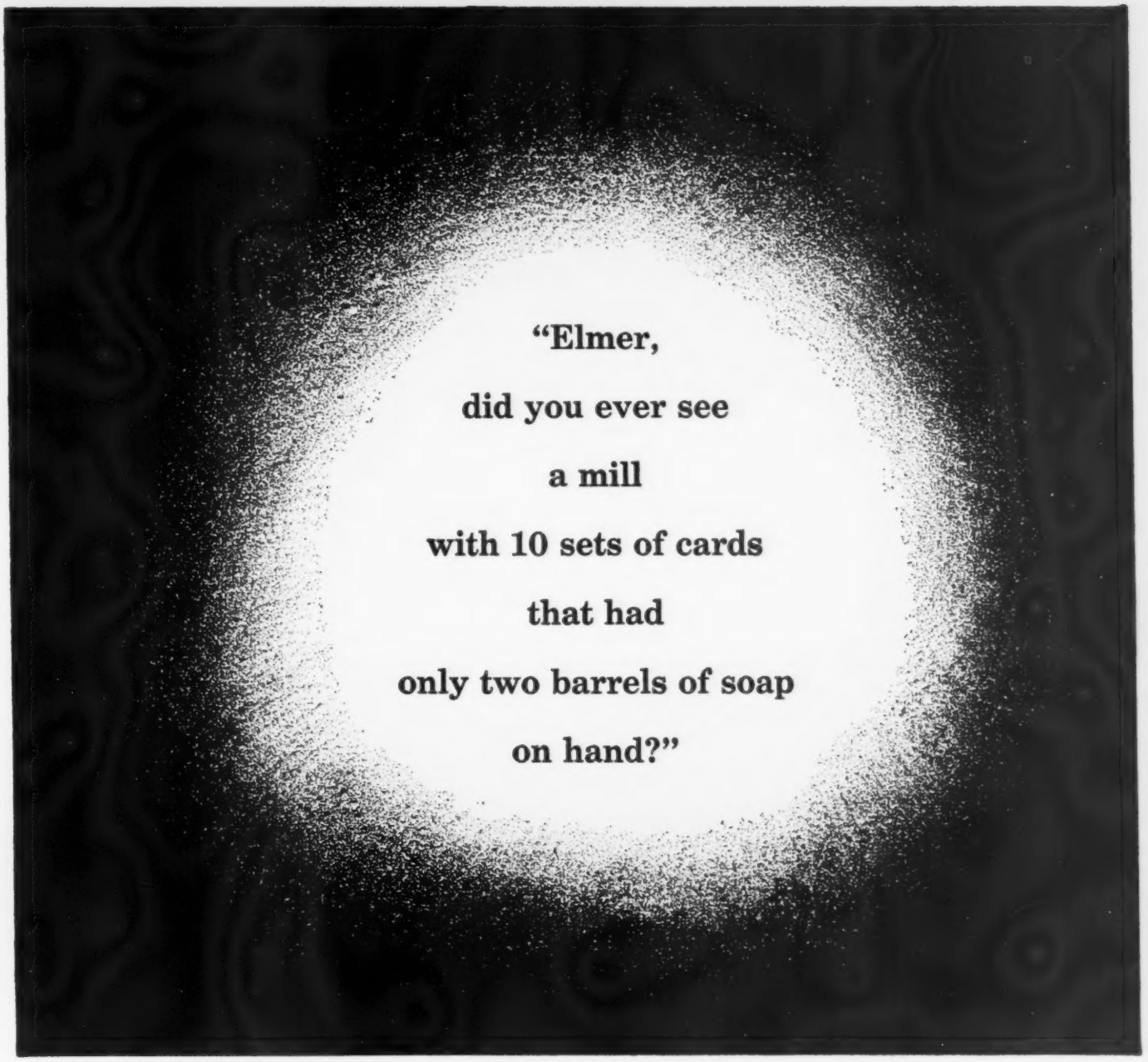
In order to lessen heat generation at the connection, the surface of the pipe should be cleaned with a file or an abrasive cloth, so that a good joint is obtained between the pipe and the copper clamp. Damage to the pipe can be prevented by not allowing an arc to form at this point.

The amount of current generally needed for thawing pipes is between 200 and 500 amp. Lead pipes will not stand so much current as iron pipes, and care should be taken to select the correct amount of current for pipes containing lead.

The pipe to be thawed should be disconnected from the piping inside the building, so that the current will travel only through the frozen section. This precaution will also prevent possible fires where other installations are grounded to the water lines.

Pipe dia. (in.)	Recommended amperes	Approx. min. to thaw	Recommended cable size	Resistance per 100 ft cable
1/4	75	15	No. 6	.0395
1/2	125	20	No. 2	.0156
3/4	200	20	No. 0	.00984
1	250	30	No. 00	.00780
1 1/2	300	30	No. 000	.00619
2	350	40	No. 0000	.00491
4	600	75	400,000 cm	.00270
6	800	120	600,000 cm	.00180

This table can be used to help determine some of the factors involved in thawing frozen pipes with electric welding sets.



THE statement quoted above was made recently by the superintendent of a woolen mill which, since adopting FYBROL 1115, *has not used a single ounce of soap!*

This mill, along with many other leading wool and worsted mills, is in a fortunate position because FYBROL 1115*—the *original* water-soluble, self-scouring wool oil—does not depend for its efficiency on *scarce fats and oils.*

Non-gumming, evenly penetrating FYBROL 1115's better coverage improves mill efficiency . . . leaves at least 50% less residual oil after scouring, increases card production, and improves spinning. Easier to use and more economical than conventional wool and worsted oils. Proved by experience in mill after mill, on all types of blends.

Let us help you solve your fibre lubricating problems. Write for a free sample of FYBROL 1115 today.

*Patents Pending

Textile Chemicals Division

L. SONNEBORN SONS, INC.

Dept. W-12, 88 Lexington Avenue, New York 16, N. Y.
Plant and Laboratories: Nutley, N. J.
Refineries: Petrolia and Franklin, Pa.

Wool and Worsted Oils • Petroleum Sulfonate Bases • Detergents and Dyeing Oils • Penetrants • Delustering Specialties
Warp Dressings • Finishing Sizes and Softeners • Water Repellents • Sulfonated Oils • Wetting and Rewetting Agents

Kinks AND SHORT-CUTS

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 Savings Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production, in brief any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operation. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ **SAVINGS BOND PRIZE FOR DECEMBER**

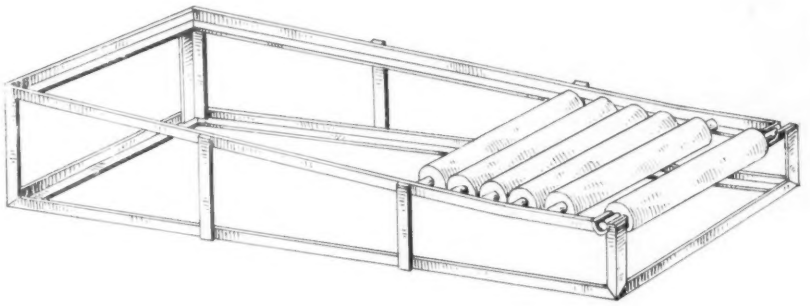
(October Contest)

Rack Behind Perch Eliminates Lifting by Girls

Placing cloth rolls in running position on our examining perches was a difficult job for the girls inspecting the cloth. The cloth rolls were brought from the weave room and left on the cloth truck in a position convenient to the perches, and two girls lifted a roll into place on a perch when a new roll was needed.

To eliminate this lifting by the girl operators, we built racks to hold several rolls of cloth and feed them by gravity to the perch stands. The man who brings the rolls from the weave room places them on the racks. When a roll is run off on a perch, the inspector removes the core and rolls the next cloth roll onto the stand.

The rack, shown in the accompanying sketch, is made of 3-in. angle iron and is braced with four legs made of 2x⅜-in. flat iron. It is welded together, and the track upon which the rolls rest is sloped downward ½ in. per foot toward the examining perch. At the end of the slope is a level section equal in length to about three times the diameter of a cloth roll. This level section permits the second roll of cloth to act as a stop to hold back the rolls moving down the incline. *(K-590)* Arthur Spivey, *Huntingdon, Quebec.*



This rack behind the cloth-examining perch eliminates lifting of cloth rolls by the girl inspector. Except for the four middle legs that help support the rack and the half-round holders, all the material used in making the rack is 3-in. angle iron.

Card Cylinder Trued With Wood-Turning Lathe

Occasionally the cylinder or doffer of a woolen card runs untrue, and it is necessary to turn down the surface with a cutting tool until the condition is corrected. The usual method employed for doing this job consists of grinding the cast-iron surface with a traverse grinder equipped with a solid emery wheel. This method is slow and often takes several days.

An ordinary wood-turning lathe, mounted on the card in a manner somewhat similar to the mounting of the traverse grinder, will do the job as accurately and much more quickly than the traverse grinder. It is imperative that a high-speed turning bit, such as carboloy, be used and that the lathe be in correct alignment with the cylinder. Cutting must be done at a slow speed; a cylinder of 60-in. diameter should be run at 15 to 18 r.p.m.

The cylinder is driven by a pulley, shown in the sketch, by a belt from a smaller pulley on the cylinder shaft of an adjacent card. The lead screw that drives the cutting tool is driven by a pulley, which is driven by a belt on the end of the cylinder shaft opposite

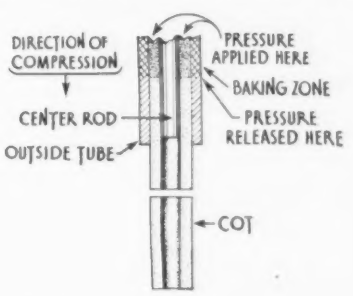
You get all 3 with ARMSTRONG'S CORK COTS

YOU SAVE in three important ways when you run on Armstrong's Cork Cots. They are low in first cost. They reduce clearer waste as much as 50%. And because their extra friction carries this waste well back onto the clearer boards, they eliminate eyebrowing. Since there's no danger of waste dropping off or being nipped into the work, cleaner work results and less frequent clearer picking is necessary.

Besides this triple saving, Armstrong's Cork Cots give you a stronger, more uniform yarn. They also have a long service life. And with rebuffings they can be used for four or five full length service lives. These cots are extra resilient. They recover quickly from most laps and hard ends. And because they're extruded, they have no hard or soft spots to grip the yarn unevenly.

Prove the three-way economy and superior spinning properties of Armstrong's Cork Cots in your own mill. See why they are one of the most widely used roll coverings. Ask your Armstrong representative for samples, prices, and complete information. Or write today to Armstrong Cork Co., Textile Products Dept., 8312 Arch St., Lancaster, Pa.

Extrusion Process Produces Seamless Cork Cots



Armstrong's Cork Cots have no structural weakness to cause premature breakdown. Each cot is uniform in density from inside to outside, from end to end. As a result, each compresses evenly, spins stronger yarn, lasts longer.

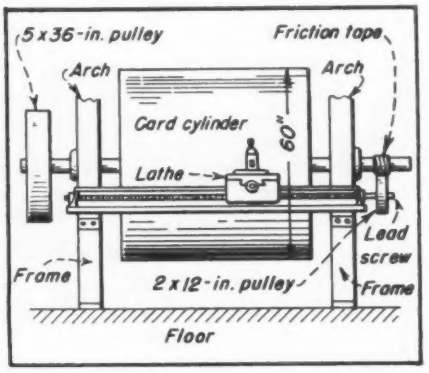
Better running work . . . more poundage

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

KINKS & SHORT-CUTS

(Continued from page 160)



A card cylinder or doffer can be turned down accurately and quickly if a wood-turning lathe is used instead of a traverse grinder with a solid emery wheel.

that pulley. A smoother drive usually is secured by wrapping the driving shaft with friction tape at the point where the belt contacts the shaft. *(K-586) Peter M. Crofts, Washougal, Wash.*

Remove Spinning Cylinder Without Breaking Setscrew

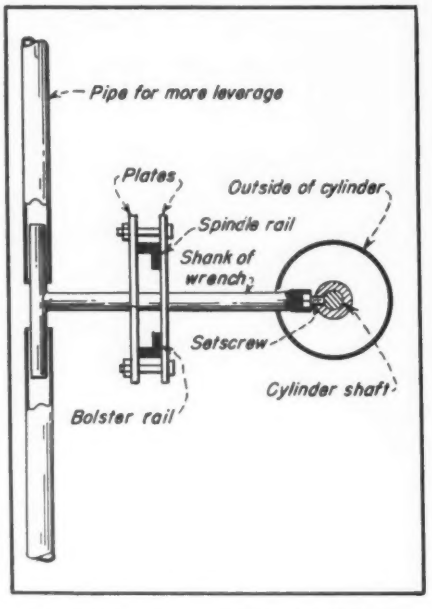
A source of trouble in removing a section of a cylinder from a spinning frame is that the setscrews that hold the cylinder to the shafts frequently twist in two when pressure is applied with a socket wrench. Usually, this breakage is not caused by the force necessary to start the screw out but by the improper application of that force. I eliminated this trouble in our plant by devising a bracket to hold the socket wrench so that the force would be properly applied.

The bracket consists of two cast-iron or steel plates about 3 or 4 in. wide. These plates may be any convenient thickness, and they should be long enough to extend an inch or two above the spindle rail and below the bolster rail. In either end of the two plates, drill bolt holes; and in the center of each plate, drill a hole large enough to fit loosely over the shank of the wrench handle.

To use the guide, place one plate on the inside of the spindle rail and bolster rail, and place the other plate in a corresponding position on the outside of the rails. Insert a bolt in the top bolt holes and run a nut up on the bolt until the nut touches the outside plate. Then insert the bottom bolt and secure it with a nut.

Place the socket end of the T wrench through the center holes of the guide bracket, and turn the spinning-frame cylinder until the wrench will go through the setscrew hole in the cylinder and fit over the setscrew against the shaft. As the handle of the wrench is turned, the bracket will hold the wrench in place and prevent sidewise pressure from being applied to the screw.

Additional leverage may be obtained by placing a short length of pipe over each end of the handle. *(K-584) Arturo Villegas Y., Medellin, Colombia, S. A.*

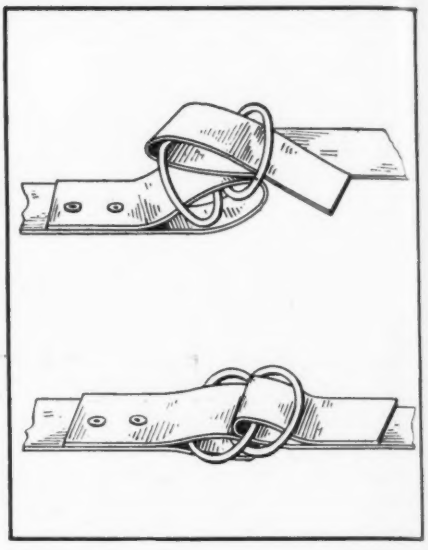


Broken setscrews can be eliminated by the use of a bracket similar to this one to hold the shank of a socket wrench in place while force is being applied to one of the setscrews that hold a spinning-frame cylinder to the shaft.

Spinning-Tape Strap Holds Harnesses in Place

When a warp is left on the floor waiting to be put into a loom, considerable damage may be caused by the harnesses falling off the beam head. If silk or rayon decorative ends are used in the warp, these ends may break and cause a loss of time in starting up the warp. This condition is especially bothersome in a large weave room where floor vibration causes the harnesses gradually to work their way to one side.

The use of a long strap fastened around the harnesses and warp after the warp is drawn in will prevent the harnesses from falling off. A strap of this sort can be made of spinning tape



A strap made of spinning tape, passed around a drawn-in warp, will hold the harnesses in place and prevent damage resulting from harnesses displaced by vibration.

and two harness rings, as shown in the accompanying sketch. Fasten the harness rings in one end of the tape by passing the tape through them, doubling it back about 6 in., and securing the doubled plies with copper rivets.

To use the rings as a buckle, put the plain end of the tape through both rings, fold it back over the second ring, and pass it through the first ring again. When the tape is pulled tight, the rings will hold it without slipping. *(K-587) Eugene P. Schremp, Lawrence, Mass.*

Lengthen Crankshaft Life By Cutting and Reversing

The ends of loom crankshafts usually wear faster than the Pittman throw sections, and many shafts are discarded while the throw sections are still good. Since the critical points of the crankshaft are the throwing sections, the life of a shaft can be considerably lengthened by repairing the ends.

One mill accomplishes this job by cutting the straight section of the crankshaft between the two Pittman throws and reversing the ends of the throw section. This reversal places a new shaft end outside the throw and the worn end inside the throw. The worn end is welded to the straight middle section of the shaft, and the new shaft end is machined so that it will work satisfactorily in the end bearing.

In repairing a crankshaft in this manner, it is necessary to measure

EVEN *DIFFICULT*

JACQUARDS

ARE *EASY* WITH

PLEXON
THE PLASTIC COATED YARN
REG. U.S. PAT. OFF.

However complicated the weave, however unusual the pattern, however rare the colors, you can depend on PLEXON, the plastic-coated Miracle Yarn, to create a gorgeous fabric for you.

PLEXON Yarn weaves smoothly, evenly, and without slipping on all types of looms...no changeover is necessary. The colors are permanently imbedded, the yarn brilliant or mat, to your order.

Is it any wonder we call PLEXON, the modern Miracle Yarn?

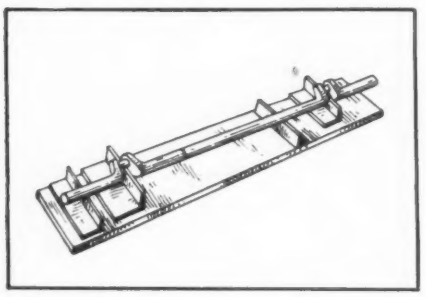
PLEXON, INC.

Plant: Greenville, S. C.
Offices: 212 Fifth Avenue, New York 10, N. Y.

KINKS & SHORT-CUTS

(Continued from page 162)

the end of the shaft outside the throw, exactly duplicate this measurement on the shaft inside the throw, cut the middle section of shaft at that point, and reverse the ends of the throw section. Before welding the worn end to the middle section, align the shaft as it was originally. *(K-591) The Linde Air Products Co.*



If the Pittman throw section of a loom crankshaft is still good but the end of the shaft is worn, the shaft can be continued in service by cutting the middle section as indicated here, reversing the position of the throw section, and welding the worn end to the middle section of the shaft.

Gill-Box Fallers Cleaned Continuously

It is well known that on ordinary gill boxes a certain amount of back draft is needed in order to achieve adequate pin penetration. However, the back draft is objectionable because of the possibility of forcing the sliver too deep in the pins and causing sliver to ride the pins. We found that a brush installed above the faller, as shown in the accompanying sketch, aids pin penetration, permits heavier feeding, and eliminates fiber riding the pins.

An ordinary rotary brush will serve the purpose. To the frame of the gill box at either side of the faller secure an *L*-shaped bracket, see the sketch below, and to these bolt journal brackets. The horizontal members of the latter should be bored to serve as bearings for the ends of the brush shafts, and the vertical members of the brackets should be slotted lengthwise, so that height adjustment of the brush can be made.

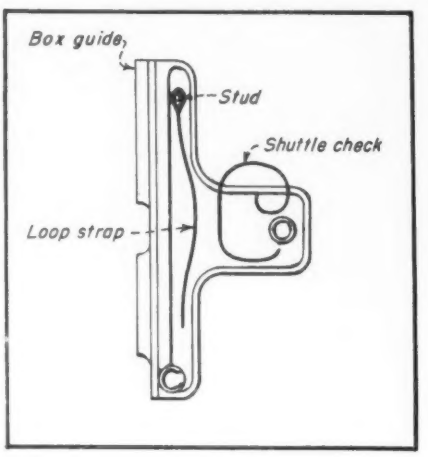
The brush is driven by frictional contact with the fallers and will keep the pins clean at all times, thus aiding pin penetration and removing riding fiber. *(K-581)*

Looped Strap on Box Guide Is Easy to Replace

The standard shuttle check on the box side of a loom has a short strap riveted to the main strap for protection. Often this second strap must be replaced, and to do so requires that the shuttle check be removed from the loom. By discarding this riveted strap and replacing it with a strap that is held in place by a stud, we are able to change the strap without removing the shuttle check, thus saving a little time.

Drill and tap a $\frac{1}{4}$-in. hole 2 in. from the top of the box guide, and make a stud $\frac{1}{4}$x2$\frac{1}{2}$ in. Thread one end of the stud, and run a check nut up on the threads until about $\frac{1}{4}$ or $\frac{3}{8}$ in. of the stud will screw into the hole in the box guide.

Secure the stud in place. Make a strap about 8$\frac{1}{2}$x1$\frac{1}{2}$ in. with a loop at one end, and place the loop over the stud. This arrangement will operate satisfactorily, and the looped strap can be replaced quickly without removing the shuttle check. *(K-161) Evariste J. Pepin.*

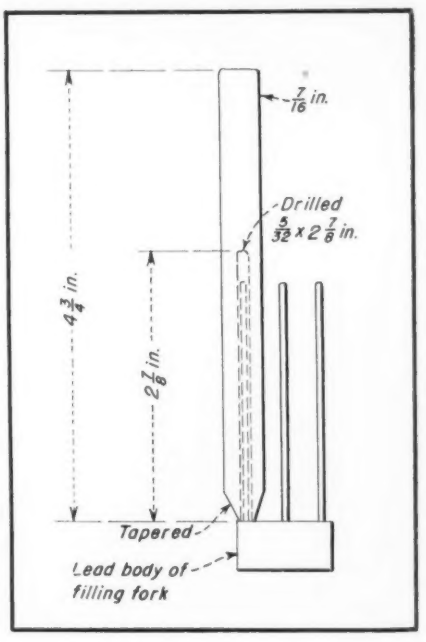


By replacing the strap riveted to the shuttle check with this strap looped over a stud screwed into the box guide, a fixer can install a new strap without removing the shuttle check.

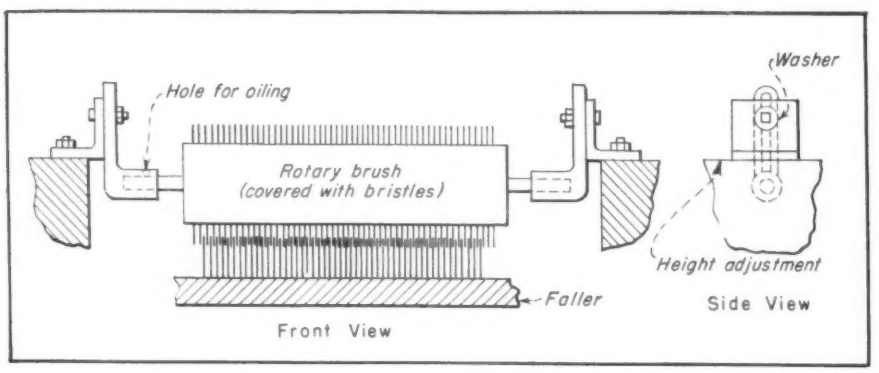
Prong of Filling Fork Tightened With Punch

Thin places in woven fabrics often are the result of looms being equipped with filling forks in which the prongs are loose. I devised a punch for tightening the prongs by tamping the lead base in which the prongs are secured.

The punch is made of a 4$\frac{3}{4}$-in. length of $\frac{7}{16}$-in. tool steel. In the center of one end, drill a $\frac{5}{32}$-in. hole lengthwise the punch to a depth of 2$\frac{7}{8}$ in. Taper the end around the hole so that



A few light taps with a hammer on this drill will swell the lead base of the filling fork tightly against the prong.



A rotary brush mounted above the fallers of a gill box and driven by contact with the fallers will keep the fallers clear of riding fiber and aid pin penetration.

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Harris Mfg. Co., 443 Stonewall St., Phone Main 2543, Atlanta, Ga.

KINKS & SHORT-CUTS

(Continued from page 164)

it will bite into the lead base of the fork.

To use the punch, remove the fork and place it with the base down on a workbench or other solid surface. This position will place the prongs upright. Put the hole in the end of the punch over the loose prong, and allow the punch to contact the lead base. Tap the solid end of the punch with a hammer. The punch will displace the lead, forcing it more tightly against the prong. (K-583) W. A. Powell, Chicopee, Ga.

Topping Stands and Bars Aid Full-Fashioned Knitters

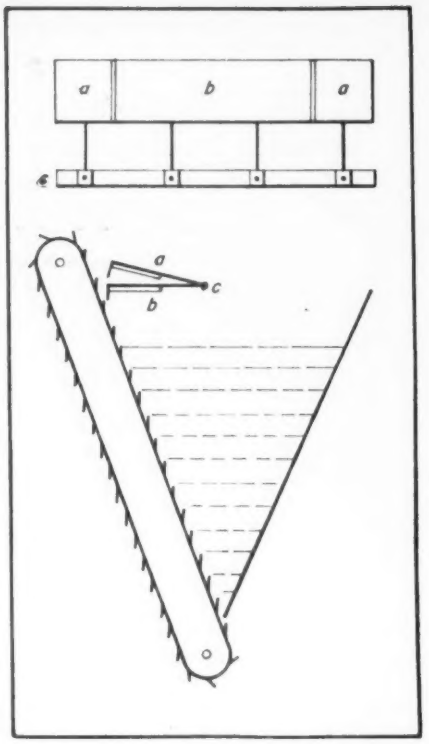
In full-fashioned-hosiery knitting, considerable time is lost when stockings press off and are retopped directly onto needles. Mills that have topping stands and bars available because of idle footers (legging machines equipped with round-heel attachments) will find that these stands and bars can be used to advantage in connection with full-fashioned knitting.

Press-offs can be topped on the stand and transferred to the bar. A dozen or more can be topped on one bar and given to the knitter to be used when needed. These press-offs may be topped immediately after the main narrowing or before the splicing; or if the topping is done on a round-heel attachment, it may be done before or after the size markings and at the beginning of the toe. If welts and any wide part of the stockings are to be topped, it is advantageous to secure wide topping stands and bars.

It will take the knitter only a few seconds to place the transfer bar on the needles, press one stocking down on the needles, close the needle bar, thread the yarn carrier, and start the machine. Besides the time that is saved, wasted yarn and needle wear usually accompanying topping and unraveling are also lessened. (K-588)

Hopper-Feed Control Aids Evenness of Sliver

Irregular sliver in woolen carding is due, in part, to the air currents generated by the fancy. This roll tends to raise the fibers from the surface of the swift and often to throw them either to the center of the machine or on the machine framework. In the case of a new fancy, especially on the scribbler, this condition is particularly noticeable and leads to two faults: There is an uneven distribution of material on the feed sheet of the carder that is reflected in a variation of count along the card, and the material in the center of the scribbler is not carded so well as that on the two sides.



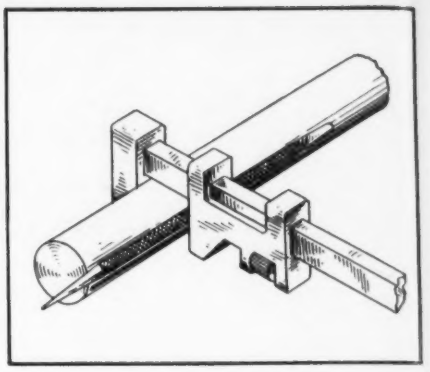
By cutting into three parts the backboard that regulates the amount of stock fed by the hopper of a woolen card, the control board can be set to feed more heavily at the sides, a, than in the middle, b, so that a more even sliver will be delivered.

This fault can be eliminated by cutting the backboard in the hopper into three parts, as shown in the accompanying sketch. This arrangement will permit the two sides *a* to be raised slightly higher than the center *b* in order to allow more material to be fed to the sides of the machine, thus counter-balancing the effect of the fancy. (K-582) P. P. Townend, Leeds, England.

Monkey Wrench, File Make Emergency Pipe Wrench

Although it is considered poor practice to use a tool for any except its intended use, there are times when a pipe, shaft, or stud must be turned and there may not be a pipe wrench handy. In such cases, the kink shown in the accompanying illustration will help.

A monkey wrench is set with the opening slightly greater than the diameter of the part to be turned, and a rat-tail file is placed between the part to be turned and the adjustable jaw of the wrench. When pressure is applied to the wrench handle, the file will roll into the opening, affording a non-slip grip. (K-545) L. Kasper, Philadelphia, Pa.

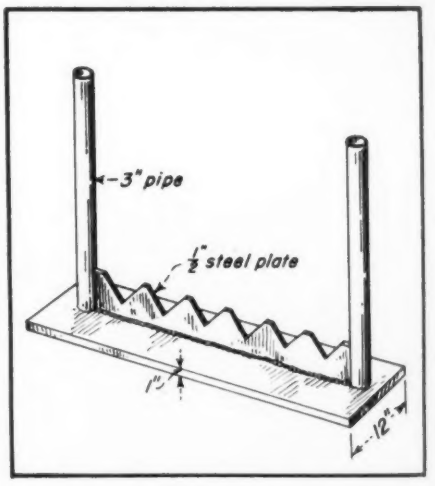


A monkey wrench and a rat tail file can be used as a substitute for a pipe wrench.

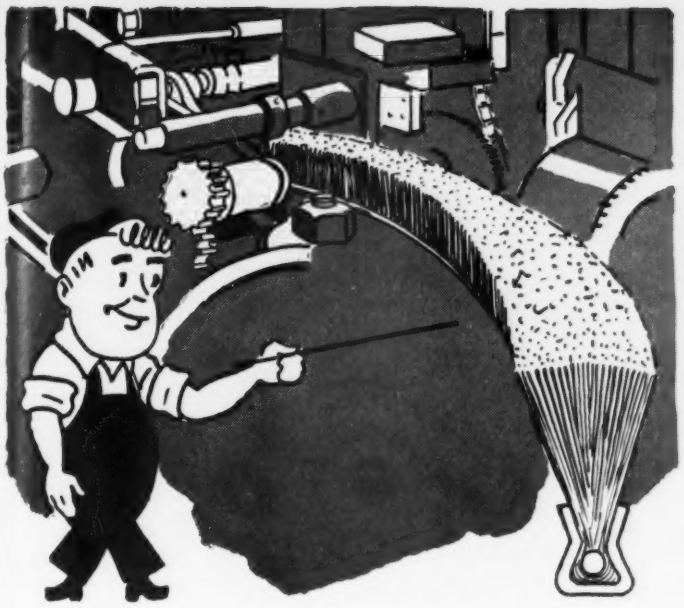
Shop Housekeeping Improved by Pipe Rack

To hold lengths of pipe we devised a rack made from two strips of steel plate and two pieces of pipe.

This arrangement composed one end of the rack. Another end was made in a similar manner. Pipes of various sizes and lengths are stacked between the uprights at each end of the rack. (K-555) Wm. H. Mullen, Quincy, Mass.

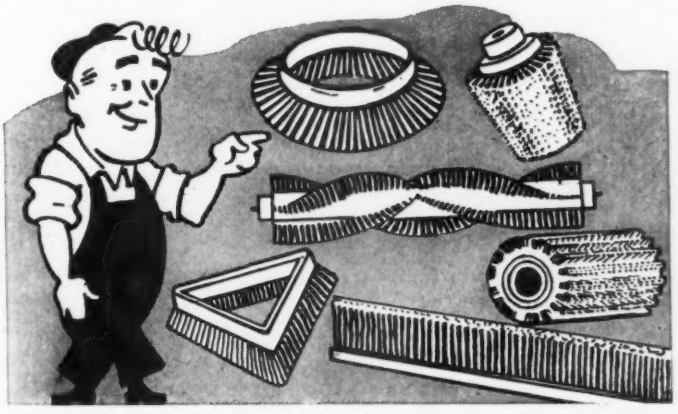


Pipes created a troublesome housekeeping job in our shop until we built a rack similar to the one shown in this sketch for storing them. To a piece of 1x12-in. steel, we welded two upright lengths of 3-in. pipe to serve as sides for the rack. These uprights were placed about 36 in. apart, and between them we welded a length of ½x6-in. steel notched as shown here.



1. Fuller-Gript Brushes are manufactured to meet your exact requirements, The steel back can be varied in width from 5/10" to 1¼" depending upon the required length of brush material. The brush material itself is selected to do your job most efficiently. A continuous mass of it is rolled into the metal backbone where it is held in a vise-like grip.

2. Fuller-Gript strips are built to close tolerances. When it is time to replace, the new strips will be exact duplicates of the old ones in size and performance. They can be installed in most cases by your own men, often without tearing down the machine.



3. The strips are versatile — they can be wound, spiraled, bent or laid straight on cores from ¼" to 3' in diameter, depending upon your specifications. Fuller-Gript Brushes are proving their superiority in many industries in a wide range of applications.

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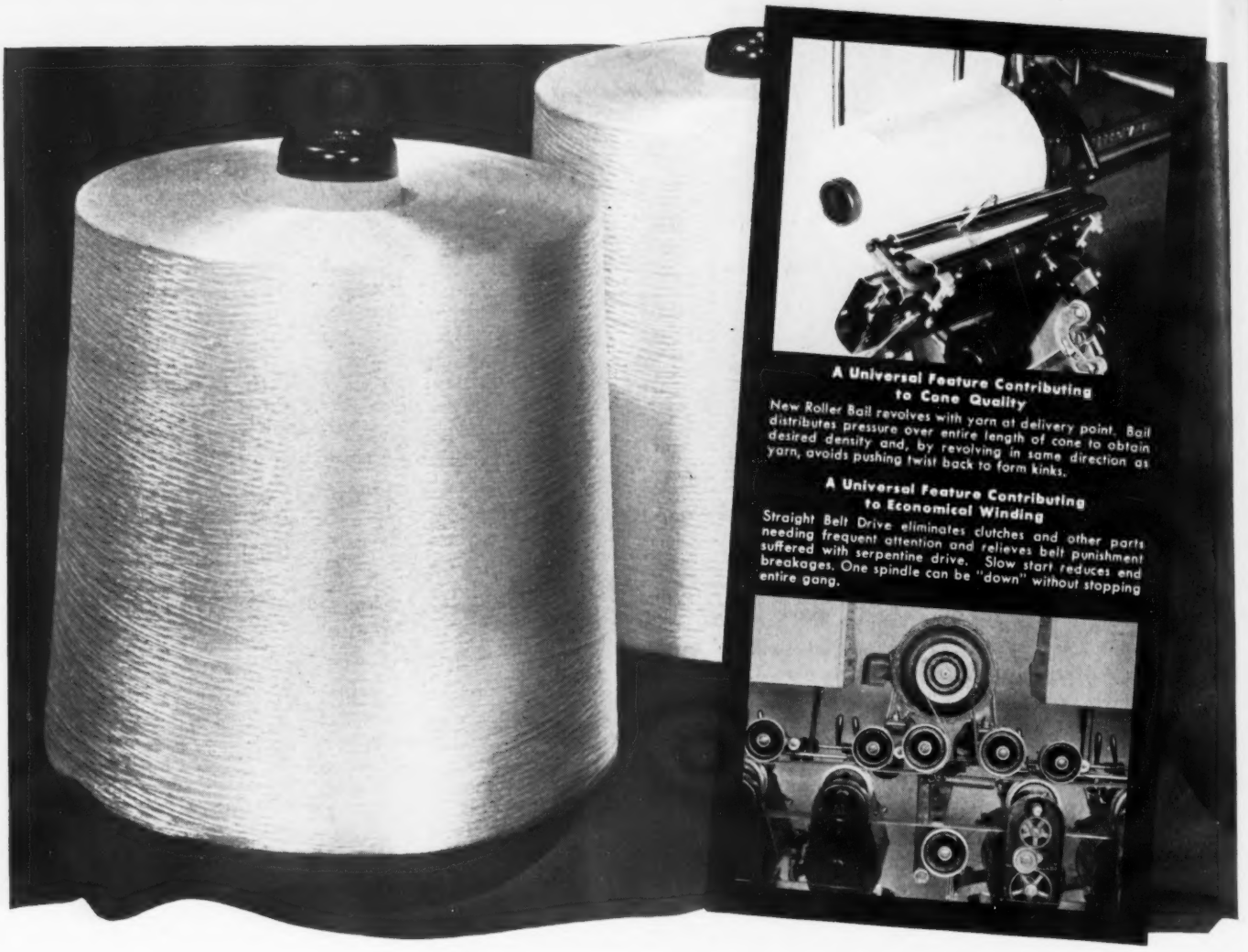
A Universal Feature Contributing to Cone Quality
New Roller Bail revolves with yarn at delivery point. Bail distributes pressure over entire length of cone to obtain desired density and, by revolving in same direction as yarn, avoids pushing twist back to form kinks.
A Universal Feature Contributing to Economical Winding
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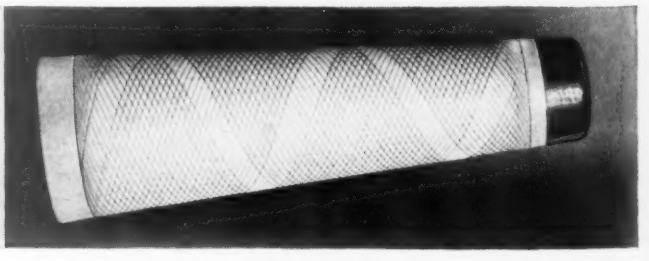


LETTERS to Pete & Bill, discussing material in this department, are paid for when published. Suggestions for the Pete & Bill dialogue will also be paid for if used. If these pages interest you, contribute something to interest others. Address PETE & BILL, Textile World, 330 West 42nd St., New York 18, N. Y.

Pete & Bill

WINTER VACATIONS

Should mills shut down Christmas week to avoid effects of absenteeism and for a winter overhaul?

HEY PETE, ANY OF THE HELP IN YOUR DEPARTMENT ASKING FOR CHRISTMAS WEEK OFF?
NO, BILL. BUT, AT THAT, IT'S NOT A BAD IDEA, PARTICULARLY THIS YEAR WITH CHRISTMAS DAY COMING IN THE MIDDLE OF THE WEEK.
1
IT'S A LOUSY IDEA TO BREAK INTO OUR MID-WINTER PRODUCTION AND CUT 25% OFF OUR DECEMBER FIGURES.
AFTER ALL, BILL, YOU'D LIKE SOME TIME TO RELAX AND PREPARE FOR A FAMILY PARTY OR MEBBE TAKE A FLORIDA TRIP. OUR PRODUCTION SLUMPS ANYWAY DURING THE HOLIDAYS.
2
WHAT ARE WE DOING HERE, PETE? RUNNING A MILL OR A YOUNG LADIES' FINISHING SCHOOL?
THIS HAS ITS PRACTICAL ASPECTS, BILL. SOME OF THE HELP ARE ABSENT ANYWAY AND WE'D AVOID LAME-DUCK OPERATION AND HAVE USEFUL TIME FOR OVERHAUL-CREWS TO DO A MIDWINTER JOB
3
SHEER LOST TIME THAT JUST INCREASES THE BURDEN OF YOUR OVERHEAD, I'D SAY.
LET'S HEAR FROM OUR READERS ON THIS - MEBBE YOU'D CHANGE YOUR MIND IF YOU HEARD A GOOD REPORT FROM A MILL THAT HAD REALLY TRIED IT.
4

Letters From Readers

Social Events Aid Morale Building

"Supporting Social Events"
(Pete & Bill, Oct., 1946)

Dear Pete & Bill:

Cooperation and friendliness go hand-in-hand to make the plant just what it should be—at the top notch of production always. Therefore I, for one, would encourage social events, at least every now and then.

So Bill is radically in error again. He should not protest movements that are socially entertaining, bringing sincere good-fellowship between mill heads, foremen, and their employees and building morale. Social events are a great help in good industrial relations. The sooner the social functions get started the better. (PB-1202)

Overseer for Social Events Should Be Good Mixer

"Supporting Social Events"
(Pete & Bill, Oct., 1946)

Dear Pete & Bill:

Support Social Events! Well, doesn't it depend on who the department head is, and on his own personality? Some men can go out and be chummy, but when they return, it's all business. And some men just can't.

But, in this case, when it seems to be only an employees' supper and doesn't involve joining into any group, it would seem more desirable to go than not.

I think Bill probably wouldn't go over too well, and it would be better for him not to mingle with the men too often. On the other hand, Pete looks like a man who can mix with the men, and have a better understanding when they return to work.

There is one important factor: If this supper is given for the employees by the employer, and especially if it is held on the mill grounds or buildings, then the department head "must" at-

tend. He can leave as early as he wants, but he's got to show his face. (PB-1203)

Old Employee Should Have Preference

"The Old Employee"
(Pete & Bill, Sept., 1946)

Dear Pete & Bill:

Personally, I would insist that old and experienced workers in any plant be given preference over young men. Young heads rarely, if ever, measure up to the standards of the mature and experienced.

You can really tie to and depend upon the average man of long experience and training. Occasionally, it may prove true that a younger employee might meet the requisites and prove thoroughly satisfactory. Sure, Pete has the correct version, especially in a majority of cases. Old heads are safe and dependable, "nine times out of ten." (PB-1204).

Worker Swap Only for Benefit of Whole Mill

"Swapping Employees"
(Pete & Bill, Aug., 1946)

Dear Pete & Bill:

Operation of a mill should be on an inter-department, cooperative basis or, literally speaking, it should function as "one happy family."

If it is necessary for one department which is shorthanded to borrow help from another part of the mill to maintain an efficient production, then the latter should be only too glad to extend a helping hand for the mutual benefit of all concerned.

It must be an established fact, however, that the borrowed operator is capable of doing the job he is called upon to perform. Simply to "fill in" with another employee due to an existing vacancy could not be called a smart move unless a satisfactory day's work and production can be obtained from that employee. Another important factor to be considered is whether or not the loan of another department's worker would in any way hamper that department's efficiency. If such be the case then it would be best to let the vacancy exist and maintain the standards and efficiency of all other departments.

Mill management would do well to stress the importance of cooperation to all overseers. Only with such a policy can short-handedness be overcome and loss of production minimized to the mill's best advantage. (PB-1205)

Books of Interest

All About the Tricot Stitch

TRICOT FABRIC DESIGN, by Thomas Johnson; McGraw-Hill Book Co., New York; 124 pages, $2.50.

This book tells its story largely through sketches, diagrams, and pattern drafts. Thus the method of drafting tricot patterns is made simple and easy to understand.

The essential knitting elements, the needle, the sinker, and the guide, are illustrated separately and in action together. The formation of the stitch is shown in 20 consecutive drawings, which, if flashed in order upon a screen, would come close to giving a motion picture of the knitting elements going through two complete stitch cycles. Two cycles are necessary in order to demonstrate the effect of the traverse action of the guide bar.

An ensuing section shows clearly the influence of the pattern wheels upon the lateral movement of the guide bar, which motion is the basic element in controlling stitch pattern. The path followed by one guide can be recorded by numbers representing pattern-wheel steps, and conversely the numerals which identify the pattern-wheel steps describe the lateral movements of the guides and, therefore, the pattern.

Over two-thirds of the book is devoted to actual pattern drafts from the simple 1-0, 1-2, single-bar pattern to numerous complicated combinations. The titles of the chapters in this part of the book indicate the scope: two-bar patterns, warp entries, pique and corduroy ribs, meshes and nets, gaiting, float and tuck patterns, inlay patterns, satin-type patterns, open and closed stitches, traversing behind the needles, length of pattern repeat, stud wheels, intermediate pattern-wheel steps, unsymmetrical patterns, three-bar patterns, colored patterns, racks and quality, warp ratios and runners, run-proof fabrics.

Pitfalls into which the new designer may fall are described, notably the fact that with some designs, the rupture of a single thread will cause the fabric to split in two. Most tricot fabrics, however, are wholly sound and actually runproof.

The author of this volume is manager of the Aveco Sales Department of American Viscose Corp. and is considered one of the world's best authorities on tricot.

The Literature of Statistical Quality Control

A BIBILOGRAPHY OF STATISTICAL QUALITY CONTROL, by Grant L. Butterbaugh, University of Washington Press, Seattle, Wash.; 114 pages, $1.50.

This useful reference work divides its records into three groups: (1) periodical literature; (2) manuals, monographs, pamphlets; (3) books. It lists 340 authors who are represented by 712 articles, manuals, and books published during the period 1924 through 1945. Four TEXTILE WORLD articles on quality control in the textile field are included. Only 17 books on the subject are listed.

Service and Maintenance of Fluorescent Lamps

FLUORESCENT MANUAL: Sylvania Electric Products, Inc., Salem, Mass.; 78 pages, $1.00.

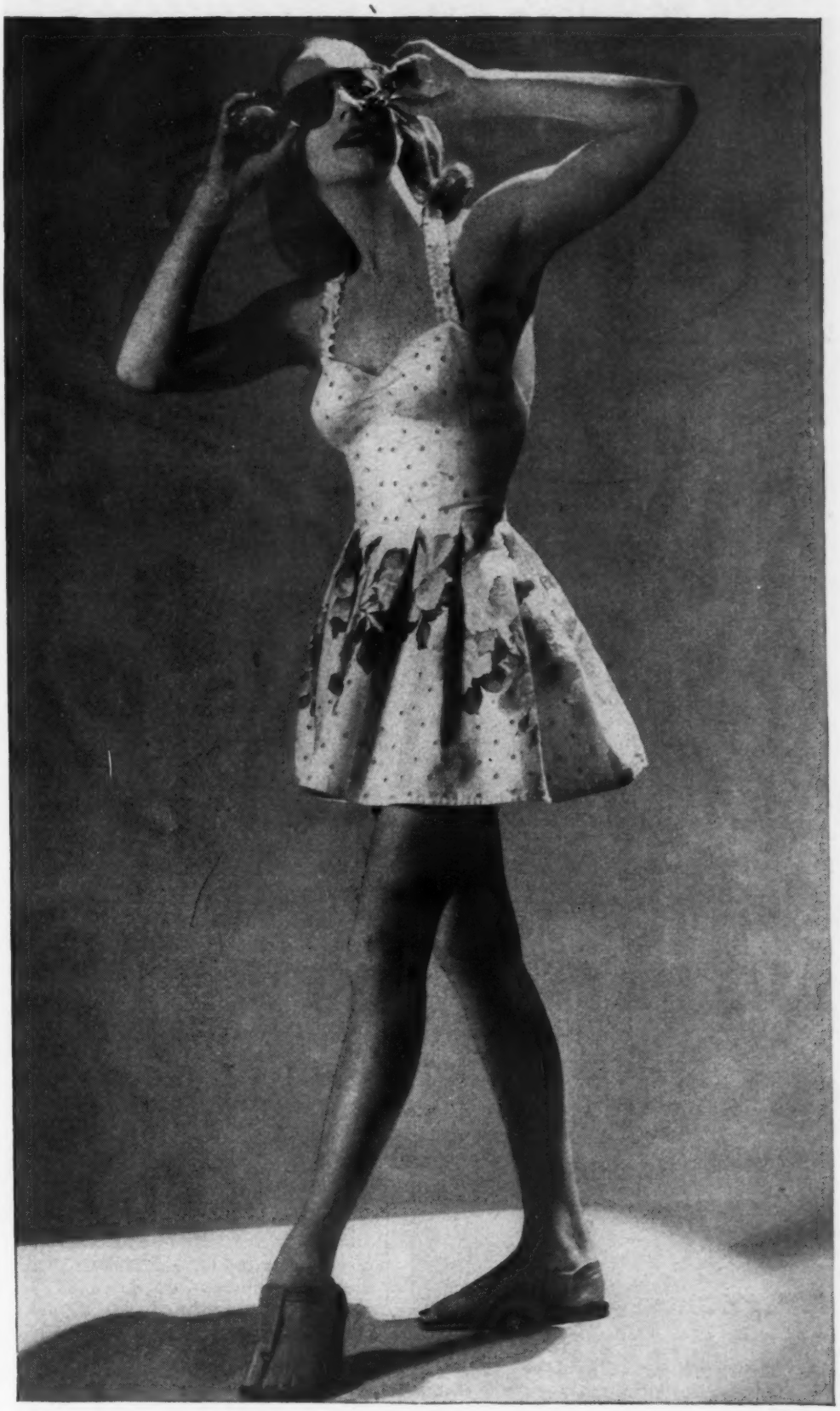
This book is written for electrical contractors, lighting engineers, and electricians and contains full details on fluorescent-lamp operation and the various problems encountered in the maintenance of fluorescent systems. There are detailed instructions on trouble shooting, testing procedures, and cleaning methods, with many illustrations and diagrams of different circuits and test equipment which can be built in electrical shops.

Start 'Em Weaving

WEAVING IS FUN, by Lou Tate; Little Loomhouse, Kenwood Hill, Louisville 8, Ky.; 66 pages, $2.00.

This spiral-bound manual contains detailed instructions for operating a small, two-harness hand loom originally designed as a wartime project for the bed-patient. It is useful for new handweavers and describes a variety of fabrics produced both by straight weaving and by interweaving special design threads in accordance with a pattern. This manual pays especial attention to warping and other basic techniques so that the beginner may be well founded and can go on to the operation of larger multi-harness hand-looms quite easily.

Focus on fundamentals...



The artistry of its designer . . . the skill of its maker are both reflected in the bewitching beauty of this high-fashion bathing suit. But—let's get down to fundamentals. The basic beauty of any fashion creation is the fabric itself!

That's why so many of America's leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality wetting, fulling, scouring and dispersing agents.

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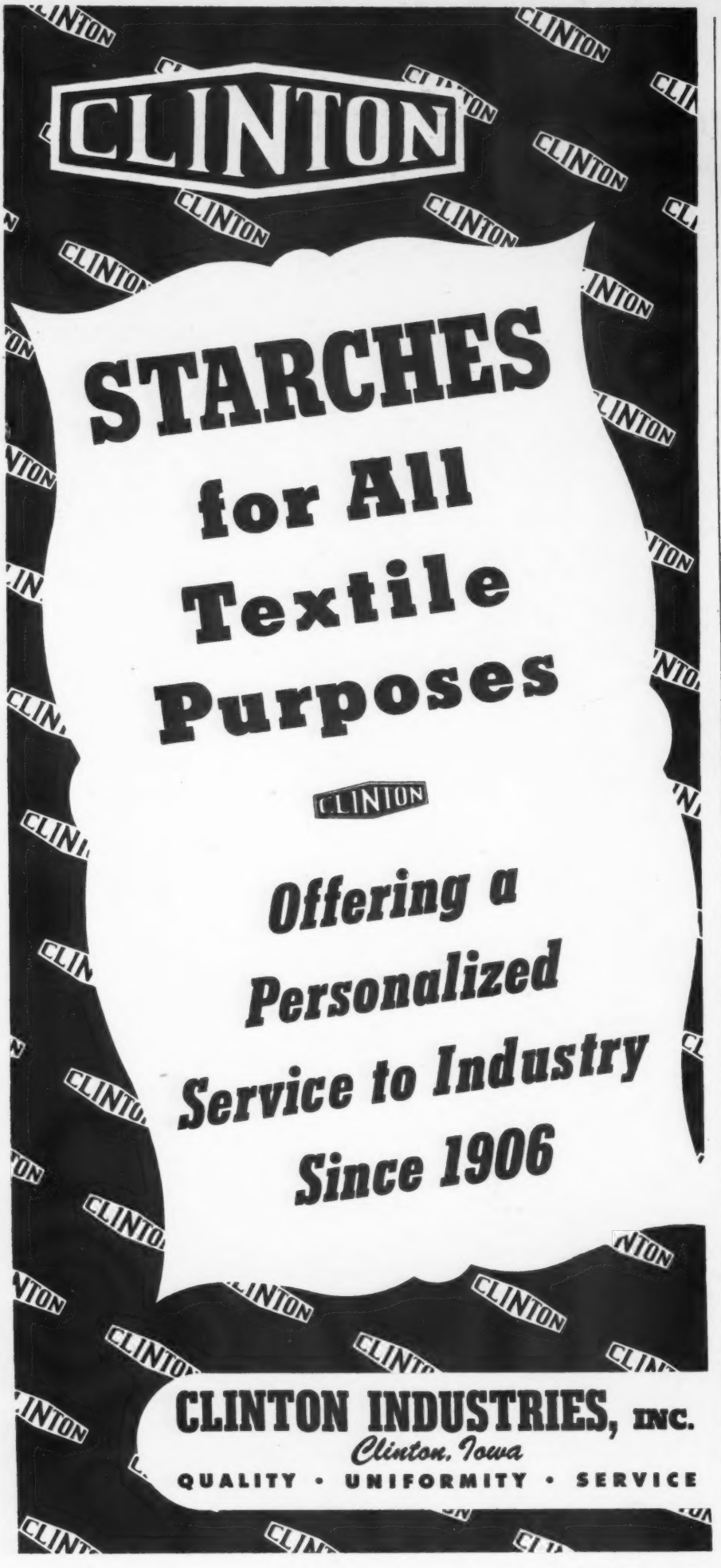

Round Table

FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

Washboard Shuttle Not Caused by Type of Box

Changing a shuttle box as specified in Round Table item *R*-293 [page 176, Sept. issue] will not prevent the condition known as a "washboard shuttle." The cause of this condition lies elsewhere in the loom.

At present, we have 96 4x1 automatic dobby looms running on gingham dress goods. These looms have front shuttle binders, and we have experienced washboard-shuttle trouble. We prefer to call it "snaking-shuttle" trouble, because it is caused by a shuttle not running in a true, center-to-center line. We have eliminated 90% of this trouble by proper loomfixing.

Some of the things we do to combat a snaking shuttle are:

Make sure that the shuttle is not choked in the box. The shuttle should come out of the box with only a slight pressure applied by two fingers.

Place an empty reed in the loom, and run a piece of cord from one side of the loom to the other to see whether or not both boxes are lined properly to throw the shuttle from one box in a straight line to the center of the other box. The reed should be about ⅛ in. from the cord.

Check the picker stick to see if

weaving a colorful future in fabrics

Look into your future in fabrics! You'll be sure to see Saran. For this Dow plastic is setting new standards of smartness and serviceability in textiles.

Saran's beauty is easy to see. It stands out in textiles of new smoothness . . . new sparkling colors. And that beauty is there to stay because Saran's colors won't wear off —the color permeates every single strand.

Saran stands out in serviceability, too. Fabrics woven of Saran monofilaments stay in shape . . . won't snag or scuff . . . won't absorb dirt or grease. Saran textiles are ready for the toughest wear.

Saran is proud of its service record . . . in transportation seats and shoes, luggage and handbags . . . wherever smartness and serviceability count. Find out how Saran can serve to brighten your future in fabrics.

SARAN

FOR BETTER FABRICS, LOOK TO SARAN

Saran compounds, produced by Dow, are extruded as monofilaments by skilled licensees. They can give you more information about Saran and its possibilities. Dow licensees include:

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★ Irvington Varnish & Insulator Co., Irvington, New Jersey

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Giving Loads the "Brush-Off"

with a

TOWMOTOR UNLOADER

Here's mechanical handling, from a fork lift truck, that completely eliminates manual unloading of stable loads. The Towmotor Unloader saves time and labor by unloading an entire load with a single, sweeping motion.

Newest of the Towmotor Accessory Group, the Unloader cuts carloading time 50%, permits placing of loads anywhere, with or without pallet. Does not interfere with normal lift truck operation. Screen height and length of unloading stroke furnished as required. Installed at the factory, the Unloader is available for use with most new Towmotor models. Towmotor Corporation, 1217 East 152nd Street, Cleveland 10, Ohio.

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TOWMOTOR *THE ONE-MAN-GANG* **FORK LIFT TRUCKS** *and* **TRACTORS**

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there is the proper amount of play in it. The stick should not go beyond the center of the box in throwing the shuttle across; it should clear the bumper 2 to 3 in.

The leather picker should be properly aligned. To check the alignment, place the shuttle in the box, hold the picker stick near the lug strap, and push the stick toward the shuttle. If the alignment of the picker is correct, the shuttle will go out of the box straight and toward the reed.

After these adjustments have been made, start the loom up, leaving it empty except for the reed. Observe closely the path of the shuttle as it is picked back and forth. Fine adjustments at the points mentioned may need to be made. *(R-309) Bruno Pasquariello, Hawley, Pa.*

Average Staple Length Has New Meaning

In the article on roll settings in the Sept. issue, beginning at the bottom of page 121 and continuing on page 123, are the following statements:

"Instructions on roll settings in some of the older text books are very misleading. Directions are given to set front-to-second rolls to $\frac{1}{8}$ in. over the average length of staple. . . . The average or mean length of normal 1-in. cotton is about 0.84 in. With $\frac{1}{8}$ in. added, the setting would be slightly under 1 in."

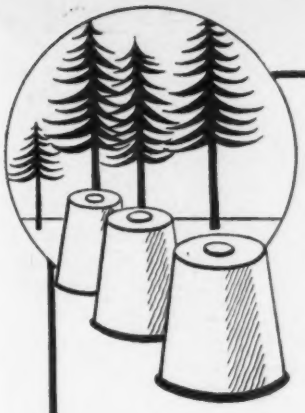
At this point the author refers to a sketch that shows that the longer fibers in the cotton will be broken between the drafting rolls with such a setting.

In defense of the text books—and of the old method of arriving at roll settings—it should be said that "the average length of staple" did not mean the same thing when the text books in question were published that it means now. The author based his average staple length upon the average as revealed by fiber-array tests; whereas, average staple length formerly meant the average of classer's lengths of bales blended in a mix.

Fiber-testing techniques now in use in laboratories and mills are relatively new. Very few mills were using these tests before the war; and when the term "staple length" was mentioned to an average mill man, he immediately thought in terms of classer's length. Since practically no textile texts were published during the war, it is safe to say that most of the books now in print still use length to mean classer's length.

Actually, until a much greater percentage of mills adopt fiber testing

(Continued on page 180)



IN THE PUBLIC INTEREST

Aided by consistent improvement in the wood cellulose which goes into its manufacture, rayon has greatly broadened its sphere of usefulness. Today there is hardly an individual who does not use rayon in everyday living, and this use is increasing daily.

Supplying a raw material so closely related to the public need imposes also a public responsibility. Rayonier, as the major producer of wood cellulose for the rayon industry, is alert to the challenge. Through extensive research, it seeks further improvement in existing wood cellulose, and also the development of new types for special purposes — often before a demand exists.

Prior to the war, for example, wood cellulose had not been used in making acetate rayon, although it had long been utilized for viscose rayon. In 1942 however, when the acetate rayon industry was faced with a shortage of raw material, Rayonier was ready with *Rayaceta* — a special wood cellulose for acetylation — which it had developed several years earlier.

The increased use of wood cellulose as the basic raw material for rayon, may be attributed in large measure to the steady improvements in quality — the development of special types in anticipation of a need — and the ability to custom-make this essential raw material for an industry which shows no signs of having reached the saturation point. In this manner, we are meeting our responsibilities "in the public interest."

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Sales and Executive Offices: 122 East 42nd Street, New York 17, N.Y.
Mills: Hoquiam, Port Angeles and Shelton, Wash., and Fernandina, Fla.

Why some fabrics are so easy to clean

One of the points of attractiveness of modern Celanese* synthetic fabrics is their ease of care. And there's a scientific reason why this is true.

Because Celanese* cellulose acetate yarn is a man-made fibre of accurately controlled quality, it has inherent advantages Nature cannot give her fibres. One property of Celanese synthetic yarn results in greater resistance to soiling and staining and consequently greater ease of cleaning.

Celanese fibres have low moisture absorption and also the fibres do not swell in the presence of moisture to anything like the extent of cotton or viscose process rayon. Since most common stains are carried by moisture, less stain is absorbed into the Celanese fibres; also because of the resistance of the Celanese fibres to swelling, their surfaces remain relatively tight and compact and stains are able to penetrate to considerably less extent. As a result there is less imbedded stain and the stains that are present are easier to remove by dry cleaning or laundering.

There are other differences, too, that set apart Celanese synthetic yarn from viscose rayon and the natural fibres. Celanese fibres dry more quickly after washing. They have greater dimensional stability in their resistance to shrinking and stretching. In addition they are moth-proof and mildew resistant.

To be sure of obtaining the advantages inherent in modern Celanese synthetic yarn, consumers look for the Celanese label when they shop for clothes or fabrics. There's a difference well worth seeking—that's why quality manufacturers are proud to identify their fabrics as "Celanese". Celanese Corporation of America, 180 Madison Avenue, New York 16, N.Y. *Reg. U. S. Pat. Off.

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Celanese* SYNTHETICS

MANUFACTURERS' BULLETINS

READERS may secure copies of literature reviewed on these pages by using the post cards below. Fill out COMPLETELY one coupon for each piece wanted.

Free FOR THE ASKING

1. A pressure gage for a wide variety of shop uses and for use as a textile tensometer is described in a leaflet published by W. C. Dillon & Co., Inc. The folder describes six models, providing ranges from 0 to 5,000 lb. and features the small size of the instrument and the remote repeater section which may be placed up to 500 ft. from the instrument.

2. Developments in nylon sizing and coning, methods of controlling tension on the Roto-Coner, and new stopping mechanisms for Nos. 6 and 8 winders are described in issue No. 58 of "Getting the Most from Winding," published by Universal Winding Co.

3. "Beat the Heat", a comic-strip-style publication designed to eliminate heat sickness, heat exhaustion, cramps, prostration, and to erase summer heat's toll in employees' health, has been published by Carnegie-Illinois Steel Corp.

4. "Soda Ash" is the title of a 64-page bulletin published by Solvay Sales Corp. The bulletin contains chapters on the properties of soda ash, bulk shipments, storage, conveying and elevating, unloading of bulk, unloading of bags and barrels, weighing, proportioning and feeding devices, sampling analyses, precautions, and conversion tables.

5. Centrifugal blowers and exhausters are described in an 8-page, two-color folder, Bulletin 120-B-13, published by Roots-Connersville Blower Corp. Single- and multi-stage types with capacities up to 100,000 cfm. are described.

6. Electrical installations for textile mills, including proper wiring, suitable types of motors, motor controls switches, cut-outs and fusing, and safe lighting arrangements for mill locations where electrical fires have been frequent, are described and illustrated in a bulletin published by Associated Factory Mutual Fire Insurance Cos.

7. Slip-ring induction polyphase motors in capacities from 1 to 350 hp. are described in Form 643 published by Century Electric Co. Operating characteristics of slip-ring induction motors are given, and applications where these characteristics may be desirable are described.

8. Self-locking nuts and related fastening devices, and methods for testing the locking effectiveness of such devices, are described in a 16-page booklet published by Elastic Stop Nut Corp. of America. Also described are equipment and procedure for making tests for vibration, installation and removal torques, re-use torques, and wearing and plating.

9. "How to Pack Your Durcopump" is the subject of a 4-page instruction folder published by The Duriron Co., Inc. The information in the booklet is designed to be applicable to all chemical- or corrosion-resisting pumps. Instructions on selection and installation of proper packing for each size pump and type of service are given. Methods of dealing with slurry problems and the handling of high suction heads are described.

10. Chemistry and use of fatty-acid metal-working oils are described in a loose-leaf booklet published by Emery Industries, Inc. The booklet describes the manufacture, handling, storage, and qualities of finished oils.

11. Use of Towmotor equipment at Magee Carpet Co., Bloomsburg, Pa. is described in Lift Truck Job Study No. 60, published by Towmotor Corp. The way in which Magee solves its handling problems by increasing handling speed, improving safety, and increasing load capacity of freight car shipments are described.

12. Heat recovery from internal combustion engines is the subject of a catalog published by The Sims Co. Jacket-water heat exchangers and exhaust-gas boilers are catalogued, described, and illustrated. Also provided is a table from which to figure the size boiler required under varying operating conditions.

13. The basic facts about rayon cord in tires, based upon results of laboratory and road tests on cords and tires, is summarized in a booklet, "The Record of Rayon Cord in Tires," published by American Viscose Corp. The booklet explains the functions of both the cord

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and the tire, describes the characteristics of rayon cords, and analyzes in non-technical terms the performance of tires made with rayon cord.

14. Aerotex Resin M-3, a basic melamine resin for controlling shrinkage and imparting crease resistance to rayons, linens, and cottons, is described in a bulletin published by American Cyanamid Co. Uses of the resin to bind pigments and to act as a gas-fading inhibitor on acetate rayons, as a fixative for starches and gums, as an anti-slip agent, and as a durable stiffener, where desired, is described. The bulletin gives formulas in which the resin is used and discusses typical problems connected with its use.

15. "The ABC's of Fair Trade," a booklet conceived as an aid to sales executives in formulating their price policies, has been published by American Fair Trade Council. The new edition of the 12-page booklet is designed to be of help especially to manufacturers who are planning to protect their trade-marked products through the fair trade laws.

16. Safety die jack, a new tool for separating and assembling die sets, is described in a two-page folder published by Persson Mfg. Co.

17. No. 90 Winders and methods for keeping them in good condition are described in a 12-page booklet titled "Helping Your 90 Keep Well and Strong" published by Universal Winding Co. Lubrication, cleaning, and adjustments are covered; a table giving common troubles and possible causes and cures is given; and a list of operation hints is provided.

18. "About DuPont Nylon" is the name of a booklet issued by Nylon Division of E. I. du Pont de Nemours & Co. A section of the booklet deals with elasticity, resiliency, strength, abrasion resistance, and resistance to moths and mildew.

19. Thermometers and pressure gauges of the vapor-, gas-, and mercury-actuated types are described and illustrated in Catalog No. 6707 published by The Brown Instrument Co. A large cutaway illustration features the design characteristics of rectangular-shaped instruments; bulbs, charts, and interchangeable cases are cataloged.

20. Concrete floor maintenance is the subject of a folder published by Stonhard Co. The folder explains the action of "Stontop" in stopping floor dusting and in protecting against the action of acid, grease, oil, and abrasion.

21. High-pressure, hydraulic-control hose is described in a catalog recently published by The B. F. Goodrich Co. Construction features of the hose are explained; standard and special couplings are described, illustrated, and catalogued; and a table is given for figuring correct bending of hose for various bending radii.

22. Pressure-reducing valves, differential valves, and overflow valves for steam, air, or gas service are described in Bulletin No. 461 issued by Leslie Co. Large cross-sectional and external views of each class of regulator are shown, together with construction details. An index chart at the front of the bulletin is designed to simpify selection of the best valve for a specific industrial application, including steam supply to air ejectors, dye tanks, kettles, etc.

23. Non-clogging sewage pumps, ejectors, and sludge pumps, their construction details, dimensions, installation and operating data, and specifications, are described in Bulletin 964-D, published by Buffalo Pumps, Inc.

24. Facts about Alberta, its industries, and resources are presented in a leaflet published by the Department of Economic Affairs of the Province of Alberta, Canada. Agricultural, industrial, and commercial statistics are presented; raw material and natural resources are described.

25. Self-lubricating bearings for spinning frames, looms, and other machines and self-lubricating sheaves for looms are described in a folder published by Nolu Oilless Bearing Co. Many types of the oil-impregnated wood structures are illustrated.

26. "Pneumatic Control Valves and Controller Accessories" is the title of a 36-page booklet, No. 277-1, published by The Foxboro Co. Among its features are: a color page illustrating Stabilflo valves; plates and tables of specifications for control valves, needle type valves, poppet valves and butterfly valves; and separate sections on the high-accuracy positioning of valve plungers.

27. Bracing railway-car doorways is the subject of a four-page illustrated booklet issued by Acme Steel Co. Methods for bracing both the off-side and the loading-side doorways are pictured; illustrations of required tools and accessories are given.

28. Eye-protection equipment of a wide variety of types is described and illustrated in Bulletin No. CE-29 published by Mine Safety Appliances Co. The bulletin features chippers' goggles with protective lenses, chemical goggles for protection against dangerous chemical particles and splashes, open-frame spectacles, side-shield spectacles, dust goggles, welders' goggles, acetate goggles, and specially designed goggles for workers who must wear corrective glasses.

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★ *Accepted by the Textile and Dyestuff industry as the standard accelerated testing machines for determining the light fastness, weathering and washing qualities of materials.*

Weather-Ometer
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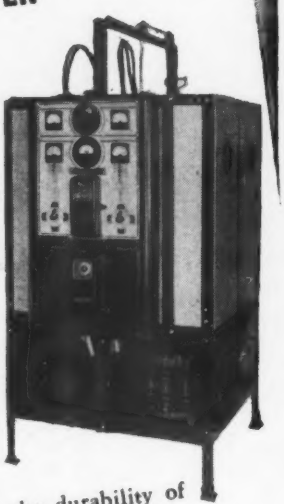
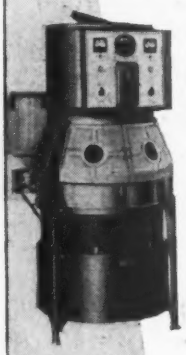
Launder-Ometer

ATLAS *twin arc* WEATHER-OMETER



Faithfully duplicates the combined weathering effects of sunlight, rain, heavy dew and thermal shock; accelerated to reduce years of actual weathering to a few days of testing. The new Twin-Arc Weather-Ometer is equipped to take large size textile specimens in order to meet the new Federal Specifications demanding accelerated weathering tests. Full automatic control of light and water periods is provided by the Atlas cycle timer unit which can be set to meet standard and special requirements of weathering tests. A direct reading thermal regulator, automatic shut-off switch and a running time meter are included as standard equipment. After setting exposure cycles on the control panel the Weather-Ometer can be safely left in continuous operation overnight without attention except to replace carbons once in 24 hours.

The Atlas Weather-Ometer proves the durability of materials under exact conditions of weathering found in actual use in outdoor exposure.



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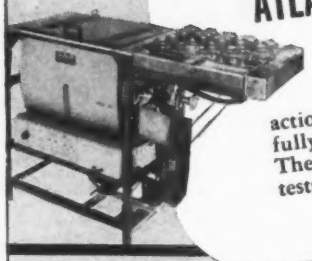

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361 West Superior Street, Chicago 10, Illinois
Originators and sole manufacturers of accelerated testing devices for over a quarter of a century.

(*Continued from page 174*)

than use it now, it will not be proper for text books to use average staple length to mean fiber-array average length, unless optional rules are given for the two definitions. *(R-313)*

Fiber Slippage Determines Roll Settings

The article "Correct Roll Settings Improve Yarn Quality" [T. W., Sept., 1946, p. 121] was interesting and informative. As the author indicates, many mills probably have paid too little attention to the matter of roll settings.

In the last analysis, roll spacing and weighting must be determined by the actual condition of fiber slippage. The handling of the amount of fiber creeled in the drawing frame is not an easy matter. Between the third and fourth rolls, the length of the fiber is not so essential as the bulk; and the important consideration in spacing the rolls is to ensure enough space to permit the different slivers to be broken down in bulk sufficiently for smooth drafting by the other rolls.

It is essential to have a smooth-running sheet of fiber from the third roll to the first roll. If the rolls are set too close, the sheet will not be smooth but will have a rumpled appearance because of the unevenness of draft and fiber breakage. If the rolls are set too open, the edges of the sheet—and perhaps the edges of each sliver—will have a frayed appearance. Frayed edges mean snarled fibers; and if fibers are tangled at this point, they will not be straightened out in later processes.

About as good a test as a carder can use is to compare the longest fibers in a sample of card sliver with the longest fibers in the same sliver as it comes from the front drawing roll. If the two groups of fibers are of practically the same length and quality, the roll settings are not too close; and as the author of the article on settings indicated, a card-room overseer is not likely to set his rolls too wide. *(R-311)*

Machine Inspection Justification Questioned

It is interesting to note the careful attention that has been given to designating the various parts of machines in the program of inspection in the July, Aug., and Sept. issues of TEXTILE WORLD. This inspection plan is no doubt intended to be used in the interest of keeping machinery in first-class working condition.

However, as one tries to visualize

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Perfect rubber cones wound throughout at uniform, very low tension

It's a simple matter to wind the *perfect* rubber cone . . . when you attach the Kidde Tension and Density Control to your Universal 50's!

This Kidde attachment—by pulling the yarn from the supply and *feeding* it to the cone—holds tension at extremely low limits . . . and keeps it *uniform* throughout the package. The stretch in rubber wound from skeins can be held *as low as 10%* on the cone. Winding speeds can be increased.

Kidde-wound cones allow knitting of uniform width goods . . . eliminate the tight strands in warps that cause gathering in the finished product. Increased power, too, in goods made from Kidde-wound material.

And Kidde-wound rubber does not deteriorate on the cone!

For further information on the Kidde Tension and Density Control, send for bulletin, "Precision Textile Winding." Consult Kidde for specific details on winding rubber.

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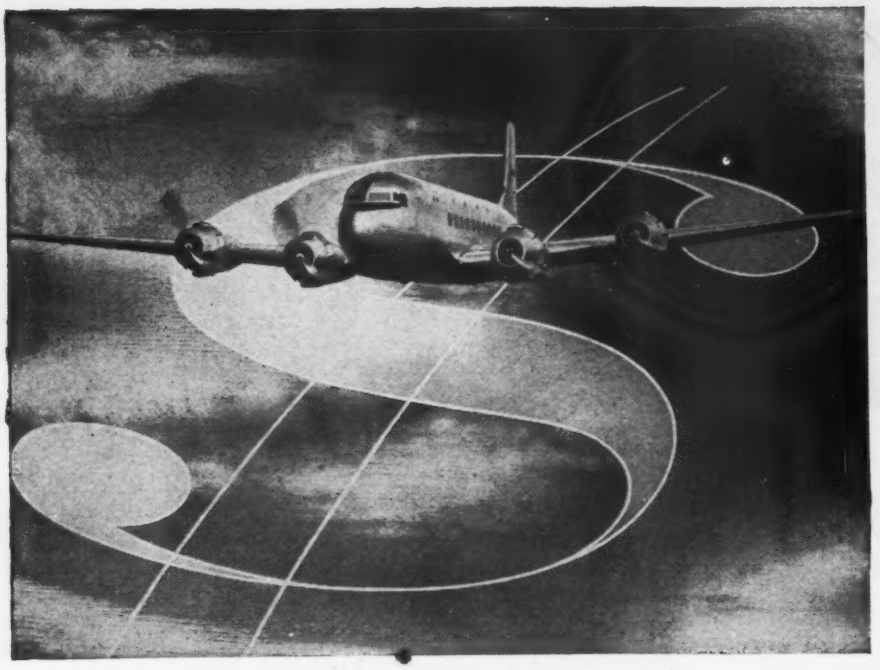

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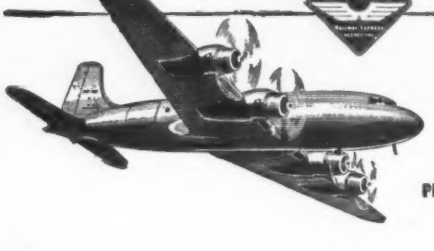

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just what a plan of this nature can mean in the economy of things connected with manufacturing, one cannot avoid a feeling that a plan of inspection seems to be somewhat visionary, it is a little uncertain as to what such a plan can accomplish.

Inspection is not enough, as the author of the inspection articles doubtless would readily admit.

In many mills, especially fine-spinning mills, the chief dependence for maintaining machinery in first-class working condition is placed in periodic overhauling. The machines are completely dismantled, and every part is thoroughly inspected. Any parts that show signs of wear are replaced with new parts; and each machine is lined, leveled, and reset in every detail.

Of course, inspection alone has a place in preventive maintenance, particularly inspection of small or auxiliary parts. For example, cards will need grinding and setting between overhauling periods, snick plates on automatic spoolers will need frequent adjustment, shuttles and shuttle boxes will doubtless require attention, etc.; but the time, money, and labor involved in an elaborate inspection program very likely could be put to much better use by stepping up the quality and frequency of overhauling. *(R-310) Robert Burgess, Newton Centre, Mass.*

Worker-Foreman Relations Aided by Charted Records

If mill management—and particularly the departmental foreman—is to avoid charges of favoritism, it must treat all workers alike almost to the point of mathematical precision. Yet, to be absolutely impartial is difficult; and to convince everyone that fairness has been achieved is the toughest problem of all.

Of course, records on such matters as sick leave, vacations, overtime, etc. must be kept in permanent form. Frequently, however, the same information could be posted in chart form, preferably on the department bulletin board, in order to keep the records in the open for the inspection of everyone.

In this way, errors are found immediately by the employees concerned; and corrections can be made with a minimum of trouble. Also, there can be no partiality—real or imagined—when the details are brought up to date on regular schedule. (Not less than once a week, the chart should be revised to correspond with the permanent records. Daily changes, whenever practicable, are even better.)

Charts should be kept in simple

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A solid citizen, a pillar of his East African community – this man is rich because he owns many giraffe's tails! Among all the tribes of East Africa, the tail of the giraffe constitutes an important article of trade, and is so highly prized that giraffes are hunted chiefly for their tails.

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Factoring can relieve you of many financial headaches – leaving you free to concentrate on buying, styling and merchandising your products.

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form, so that they are easily read and easily corrected. To avoid tampering, they may be covered or written in unusual colors of ink not readily duplicated.

Foremen will welcome this bringing the records out into the open. At first, it appears that the chart for the bulletin board adds to his work, but it really saves him time in the long run. Errors become a less serious matter, since someone is sure to bring them to his attention before any damage has been done. He is spared endless questions from workers who cannot keep their own records straight, for all the facts are right there for a quick check up. Nor will the foreman need to waste time in arguments: all time off the job shows up on the chart; and if the employee makes no objection as soon as it is posted, it is assumed to be correct.

If charges of favoritism in the mill have been justified, bringing all details out in the open will clear up much of the trouble. If the charges have been groundless rumors, foremen deserve protection from idle gossip.

While I have referred only to charts which show the time angles of the job, the same plan may be used to follow the course of other privileges which are within the foreman's power to grant. When workers have only their memories to rely upon, they frequently imagine someone else has the advantage. Talk about fairness does not help nearly so much as definite figures on a chart which is always available for inspection. *(R-297)*

How Do You Calculate Weight Per Cubic Inch?

I wonder if anyone has figures or formula for obtaining the weight of viscose rayon, acetate rayon, or nylon on bobbins, on a cubic-inch basis.

We are particularly interested in the capacity of bobbins to hold synthetic yarns, especially the finer deniers of untwisted yarns. We would appreciate your entering our query in your Round Table department, as some of your readers may have the information that is needed.

The problem of calculating the capacity of a spool—or designing a spool to hold a specific weight of yarn—often arises in textile mills. It is realized that yarn size, type (twisted and untwisted), wind, and tension each plays a part in determining how much a spool will hold. But perhaps some reader has information on how to calculate how much of a given synthetic yarn a bobbin should hold. (R-350).

Permutit protects process water, cuts cost for hundreds of mills!

EVERYONE in the textile picture requires pure process water. Spinners, weavers, dyers, finishers, converters—all know that impurities in their water supplies could disturb chemical reactions, spoil the finish of fabrics, and cause spotty, off-color dye lots. Permutit* removes these impurities—provides pure process water, increases efficiency, speeds operations!

- More and more modern mills have turned to Permutit Water Conditioning equipment to find an economical, efficient means of controlling the quality of their process water. Plan now, to see how Permutit protected process water will help in your mill. Write for full information to The Permutit Company, Dept. TW12, 330 West 42nd Street, New York 18, N.Y., or Permutit Company of Canada, Ltd., Montreal.

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* * *

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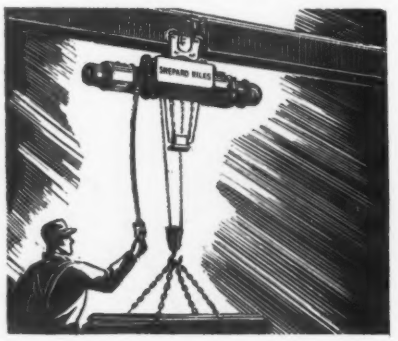

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Questions AND Answers

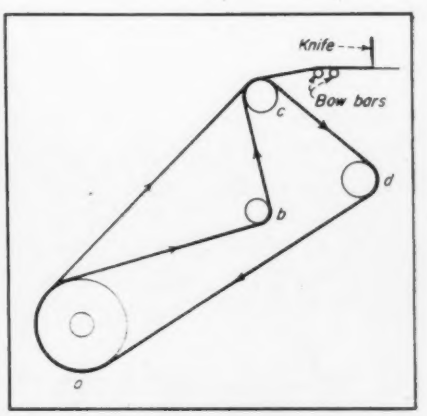
Travel of Cloth Increased by Thread-Up

Technical Editor:

In the August issue of TEXTILE WORLD, page 102, you show a picture of three coating machines at the top of the page. On the machine in the foreground of the picture, there are three strands of cloth visible. This thread-up is new to me, and I should like to know the details of it and the function it serves. (9147)

The unit specified was running on "precoat," or applying the first coat of resin to the fabric, in preparation for one or more later coatings. The thread-up consists in mounting the cloth roll in stands at a in the accompanying sketch and running the cloth under idler roll *b*, over *c* and *d*, and under the cloth roll at a, again over idler roll c, over the two bow bars, and under the knife spreader. Idler roll *d* is not visible in the photograph mentioned.

The chief advantage to this thread-up is that the cloth travels a rather long distance in a relatively short space, so that it is possible to brake the roll with a minimum of tension and yet permit the cloth to travel a sufficient distance to work out soft



In the three-strand thread-up, cloth from roll a passes under idler roll b, over c and d, under a, over the bow bars, and under the spreading knife of the coating machine.

Announcing

THE OUTSTANDING FEATURES OF

Hibbert's

POST WAR MODEL A.12
MOIST AIR-DRYING
SIZING MACHINE

● PRODUCTION

A 27½% increase on our pre-war model, which, in pre-war years gave the highest production of any known sizing machine. Early tests on our post-war model show a production up to 700 lbs. of dried yarn per hour, depending on warp being processed.

● DRIVE

Totally electric. Running speed from 6.5 to 80 yards per minute, and a crawl speed of 2½ yards per minute. No change gears or friction.

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Infinitely variable between draw roller on headstock and copper roller in size box. Electrical control of yarn winding on beam to give a constant tension from bare barrel to full beam diameter. This is automatically held at a pre-determined figure.

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Hydraulic press motion gives a pre-determined uniform hardness throughout the build-up of the beam, to suit any class of warp.

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Thermostatic control of steam heaters, ensures constant drying temperature. Yarn chamber cools down from pre-determined running temperature to room temperature in three seconds. Control of fresh air and discharged air. Yarn leaving the drying chamber passes through fresh air cooling duct. This eliminates the use of fans on headstock.

● MARKING

A solenoid actuated dabber coupled to a new cut marking motion. No change wheels required.

● OPERATIONAL CONTROL

Complete control of every phase of operation from master control panel on headstock. Seven subsidiary control push-button points for Stop, Crawl and Operational speeds.

A New Catalogue

for the latest model A.12 Moist Air-Drying Sizing Machine is in preparation, and will shortly become available. Early application for your copy is advisable.

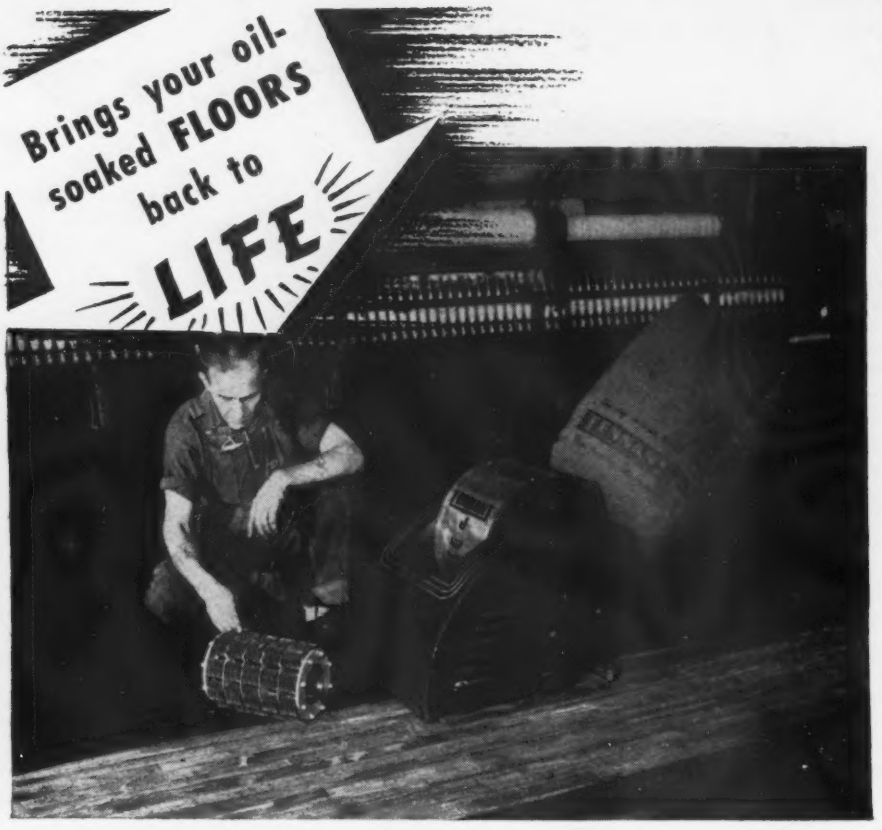
Joseph Hibbert

& COMPANY LIMITED

DARWEN, ENGLAND.

TELEPHONE: DARWEN 100

JH/S1/1



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Clean, dry, hard floors—maintained by *dry cleaning*—increase your mill's efficiency. They improve working conditions, boost employee morale and promote safety.

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RECONDITIONS worn, oily surfaces. Removes soft, dingy topwood fibers and leaves a sound, vigorous floor surface.

HARDENS and seals to resist wear. Quick-drying Tennant seal is rapidly burnished into the floor to fill, bind and HARDEN into a glossy, non-slippery, wear-resistant surface.

DRY CLEANS – eliminates scrubbing. Cleans, smooths and brightens your floor many times faster than scrubbing. Daily cleaning is easy with treated cloth mop.

WRITE today for Bulletin on Mill Floor Maintenance.

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wrinkles and creases before the coating resins are applied.

Cloth must be free of wrinkles when it passes under the knife, and any arrangement used to eliminate the wrinkles must accomplish this job without putting undue warpwise tension on the cloth. Since there is no sizing in the cloth until it passes the bow bars, the width of the cloth could be pulled down with this thread-up, particularly if the goods were of a low construction.

Fusing Quality of Acetate Used to Prevent Unraveling

Technical Editor:

Can you give me any information regarding the details of weaving labels and cutting them by the hot-seal method? I should like to know the woven construction usually used and the kind of yarn best suited for this purpose.

I should also like to have information on rebuilding loom beams and take-up rolls to take the bow out of cloth woven on wide looms. (9148)

It is customary to weave labels on looms equipped with jacquard head motions. As many ribbons of warp are tied in as the reed will take in order to lower weaving costs, and a few dents between labels are left empty to form openings into which the cutters can be placed or to act as guides if the cutting is done as a process subsequent to weaving.

However, it is also possible to weave a solid width of cloth and cut the labels by the heat-sealing method. This method utilizes the property of certain synthetic fibers, particularly acetate rayon, of melting and fusing when subjected to certain temperatures. The knife or narrow-edge heating iron is maintained at a temperature sufficient to cause the fusing; and as the cutting takes place the so-called "welded" edge, which prevents the woven label from unraveling, is formed.

If you are now weaving labels on jacquard-head looms, you can devise an electrical heating means on a multiple slitter or mount electrically heated slitting knives on the loom itself. If the cloth is woven in a solid width and cut later, you probably will have a small amount of waste along each selvage because the cloth will not be of true width. However, the amount of this waste will not be of great significance.

You should consult with the manufacturers of acetate-rayon yarn to determine the yarn to use for the particular type of labels you intend to make. Such details as whether to use bright, semibright, or dull yarn and a satin,

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AFFORD HIGH SPEED PRODUCTION AND TROUBLE FREE OPERATION...

The bulletin illustrated on this page is free. We invite you to send for it. It describes in complete detail the new Hunter #26 High Speed Fulling Mill with numerous new attachments not before obtainable. The bulletin will describe how these stainless steel Fulling Mills save wet finishing costs and reduce dead loss. Smooth polished surfaces cut flocking. More weight is delivered in cloth and less down the drain. It describes how stainless steel linings, guides, stop motions and crimping boxes, sectional rubber rolls and hydraulic tension for top roll, eliminate practically all ordinary repairs, plus lost production time due to breakdowns.

It describes in detail a revolutionary new method of applying weight to crimping box tongues with all adjustments in the front. In addition the brochure describes how Hunter Stainless Steel Mills can give twice to four times the former capacity—how uniformity is greatly improved and production increased, often to the point where twice the load is handled in ⅔ or even half the time.

A request from you on your letterhead will bring this new brochure to you. There is no obligation of any kind.

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twill, taffeta, or novelty weave will depend upon your needs.

Removing bow from cloth is not so easily accomplished. One thing that will help is to use a good temple that will hold the cloth in a straight line at the reed. There is also a new type of double temple furnished by loom builders that will help this condition.

The take-up roll cannot be of much service in preventing bowing, since the function of the roll is to wind up the cloth as it comes from the sand roll. If too much tension is put on the take-up, the gears driving it will break or wear out too quickly, probably causing tight and loose spots in the cloth.

Some mills attempt, with a degree of success, to eliminate bowing by building up the breast beam to form a slight arch, with the apex of the arch in the center of the loom. One way of making this arch is to split a $2\frac{1}{4}$-in. wooden roll and taper one piece of the roll from the center toward each end, so that the center is about $\frac{1}{2}$-in. higher than the ends. Fasten this piece, arched side up, on the breast beam.

Another thing that is done sometimes, where swing-type reeds are used, is to put bolts through the lay and reed bed about 10 in. apart along the center of the reed and tighten the bolts to obtain the effect of a more solid striking power for the reed center. The sides of the reed are allowed to give about $\frac{1}{8}$ in. at the beat-up.

Filling Requirement Figured With Formula

Technical Editor:

We are considering making up a large number of samples of cloth in various constructions and of several kinds of yarn, such as worsted, run wool, cut wool, cotton, and spun rayon. Can you give me formulas for figuring the amount of filling required for these constructions? (9144)

The basic formula for figuring filling requirements is: (picks per inch × width in reed × inches per yard × woven yards) ÷ inches per yard. This formula yields the number of yards of yarn required to weave a given yardage of cloth of a given construction.

For example, if 70 yd. of the fabric is to be woven with 56 p.p.i. and the warp is reeded 68 in., the formula would be worked out as follows:

$(56 \times 68 \times 36 \times 70 \div 36$

$= 266{,}560$ yd. of filling required.

In practice, the value 36 (in. per yd.) is omitted from the calculation, since it appears on both sides of the division sign.

At this point, two other elements enter the calculations: namely, yarn

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Day after day expert fabric men, seeing this machine in operation at our plant, agree it produces a superior fabric—*the best tricot ever produced.*

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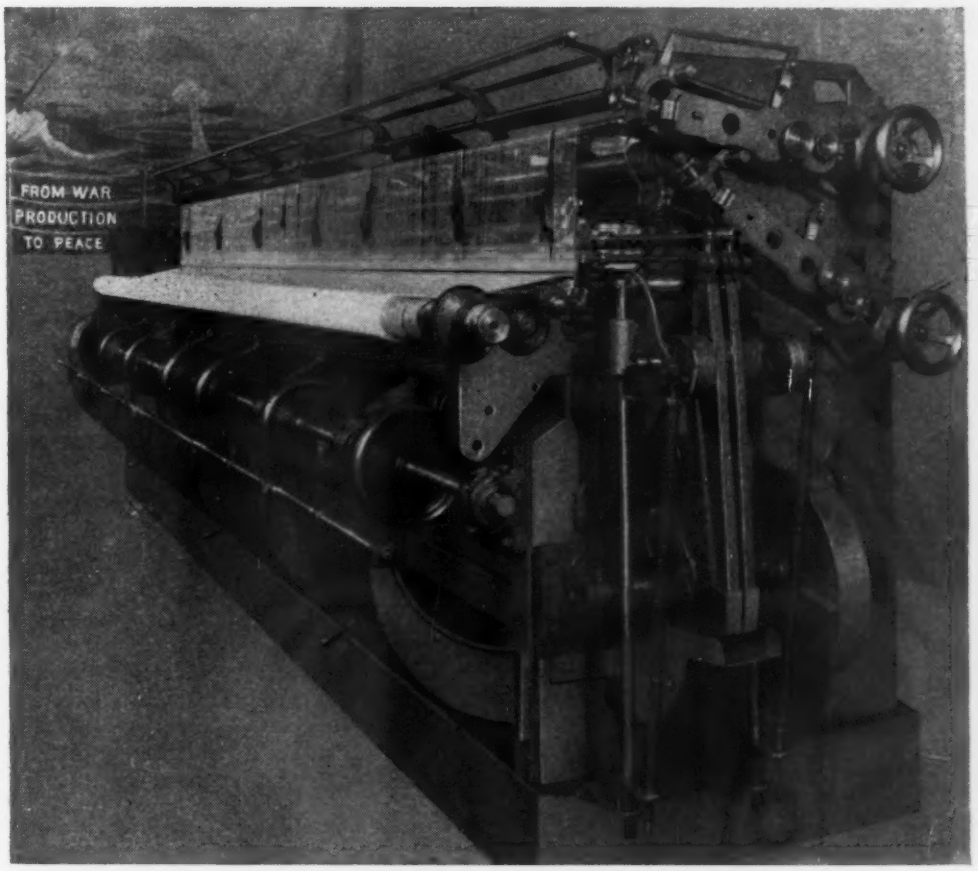
Capable of exceptional speeds in 180 inch width (26 gauge) this two bar machine assures the big money making production you've been waiting for.

Efficiency of Operation

Exclusive base design eliminates vibration. Simplicity and easy get-at-ability of all parts. The operator standing in a natural position reduces fatigue. Minimum tension stroke avoids whipping of threads. Instantaneous stop motion when breakage occurs. And many other improvements to assure versatility with a long and carefree life. See it in operation at our plant.



Purl Stitch or Link Knitting Machine

Designed to produce the most intricate stitches such as cable, braid, basket weave, rope, flat on flat, open work, herringbone, etc. Heavy construction with receptacle to prevent soiling of goods. Simplest machine of its type to operate. Send for complete information.

"V" Type Flat Knitting Machine

Fully automatic for collars and cardigan garments, having cardigan locks, changing from flat stitch to cardigan stitch, or vice versa. We will also build machines, on request, with sinkers instead of high and low butts to make 1 and 1, or 2 and 2, and then jersey stitches. Sinkers are safe and fool-proof.

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These are just a few of the reasons for the popularity of Armstrong Humidifiers. For the complete story, write today.

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Propper-McCallum Hosiery Co., Northampton, Mass.
Dr. Denton Sleeping Garment Mill, Centreville, Mich.
Julius Kayser & Co., Sherbrooke, Que.
Kilburn Mills, New Bedford, Mass.
Arkwright Corp., Fall River, Mass.
Shawmut Woolen Mills, Stoughton, Mass.
Pilgrim Mills, Fall River, Mass.
Bear Brand Hosiery Co., Kankakee, Ill.
Sakura Silk Company, Kane, Pa.
Dixie Mercerizing Company, Chattanooga, Tenn.
Carthage Mills, Inc., Cincinnati, Ohio
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number and kind of yarn. If 22s worsted filling is to be used, multiply the worsted standard (560 yd. of single 1s yarn per lb.) by the yarn number; as $560 \times 22 = 12{,}320$ yd. per lb.

To reduce the yards of filling required to the number of pounds of 22s filling required, divide 266,560 yd. by 12,320 yd., which equals 21.64 lb.

These calculations may be used for any of the kinds of yarn specified by substituting the appropriate standard yd. per lb. of single 1s yarn. The standards for the yarns mentioned are:

Worsted	560
Run wool	1600
Cut wool	300
Cotton	840
Spun rayon	840

Oxidation and Soaping Improve Hand of Fabric

Technical Editor:

We are inclosing a sample of OD shade material and a sample of the same cloth dyed on a jig. You will notice that both samples are quite stiff. Can you advise us of a method of processing this cloth so that it will have a softer hand? (9141)

Both samples of 2.25-yd. poplin, one dyed a vat OD shade and the other naphthol wine, are rather harsh and stiff. In the case of the vat-dyed fabric, this harshness might be decreased to some degree if the goods were oxidized, after dyeing, with sodium perborate or with hydrogen peroxide and acetic acid instead of the more commonly used bichromate and acetic acid.

Depending upon the dye combination, naphthol dyeing often yields a harsh feeling after dyeing, since certain elements in the colors themselves tend to impart such harshness. Often a quantity of sodium hexametaphosphate in the coupling bath will help this condition.

In any case, both the vat and the naphthol shades should be well soaped after dyeing with either a soda soap or a synthetic detergent to improve the hand.

This particular poplin, especially when mercerized, is apt to have a somewhat "boardy" hand; and this feel is further aggravated by leaving in the goods an appreciable quantity of chrome in the vat-dyed shade or metallic elements in the naphthol shade.

You do not state whether or not these goods are supposed to have a water-repellent finish, but it was observed that when given the standard AATCC spray test, the fabrics rated 50. For a water-repellent fabric, this rating would not be sufficient to pass established standards; and it is there-

PROCTOR INDIVIDUALLY MOTOR DRIVEN ROLLS MEAN "No-Stretch" DRYING

If there can be said to be a "secret" to the "no-stretch" drying that results from the use of the Proctor Roller Type Dryer, that secret lies in the individually motor driven rolls of this machine. Each roll is individually driven by a "shaded-pole" motor, which will automatically vary in its speed with the degree of tension placed upon it by the cloth being carried through the dryer. Thus, the speed of the roll is automatically regulated to compensate for shrinkage in the cloth. It is obvious that when material enters the dryer at a certain length it will be running at a certain lineal speed, but as the material shrinks, it will have to be compensated for by the speed of the rolls, if "no-stretch" drying is to be accomplished. This action is entirely automatic in this Proctor Roller Dryer. This dryer has a number of applications. It is especially desirable for drying dyed fabrics made from synthetic fibers. With certain modifications in air circulation, it is frequently used as a curer. However, in every application, the principle of the "shaded-pole" motors make possible drying that is virtually tensionless, thereby avoiding any stretching of the goods being dried. If you are engaged in the drying or curing of piece goods, this machine certainly warrants close investigation. Write for details.

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DOGWOOD OR
PERSIMMON—
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BOBBINS

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fore assumed that this condition of partial water-repellency is due to traces of the residual metallic elements.

In the finishing operations, it would be advisable to pass the goods through a 2 or 3% solution of good sulphonated oil. This treatment would materially decrease the stiffness and harshness. Of course, if the goods are supposed to be water repellent, this treatment would not be practical, since such finishing oils have considerable wetting and re-wetting properties.

The durable-type water repellents, such as Zelan and Norane, act as softening agents within themselves and will overcome to a considerable degree any harshness in a fabric. The wax types, however, do not appreciably soften goods; in fact, some of them will actually add stiffness to a fabric. There is little you can do to relieve the harshness of the goods other than to change your oxidation procedure and to soap the fabric thoroughly after dyeing.

Correct Width of Jersey Obtained by This Formula

Technical Editor:

Can the table developed by F. J. Quilitzsch (pages 56 and 57 TEXTILE WORLD YEARBOOK AND CATALOG, 1945-1946) for obtaining the correct cloth width for minimum shrinkage of ribbed fabrics be applied also to jersey fabrics? If not, is there a formula for finding the proper width of a jersey fabric when the diameter and cut of the machine and the count of the yarn are known? (9146)

The tables worked out by F. J. Quilitzsch are for ribbed fabrics only. A formula for obtaining the correct width of a latch-needle jersey fabric is as follows:

$$1 \div (21 \sqrt{\text{Yarn no.}}) \times 4 \times (\text{No. needles} \div 2).$$

If 30/1 yarn is being used and the machine has 1,920 needles in the head, the formula would be worked out as follows:

$$1 \div 21 \sqrt{30} = 1 \div (21 \times 5.48) = 1 \div 115.02$$

$$4 (1 \div 115.02) \times (1920 \div 2) = 33.38 \text{ in.}$$

However, for practical purposes a satisfactory procedure is to spread the fabric as follows:

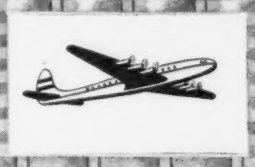
Latch needle—15% greater than head size.

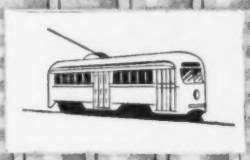
Spring needle—3% greater than head size.

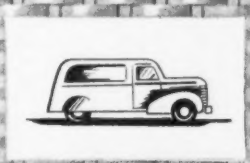
This practice, derived from experience, can be used safely only if the fabric has been knitted with a normal stitch and a proper gage head for the yarn.

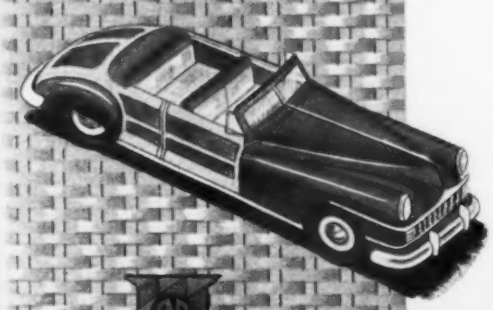
Saran BY NATIONAL

THE SEATING MATERIAL THAT'S GOING PLACES









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Check Credits • Cash Sales • Absorb Credit Losses

Knitting-Mill Standards

(Continued from page 131)

1. As a check to show the yarn-production department where yarn faults occur.

2. As a basis for "standard" which indicates what may be expected of the yarn in the future and which is also a mark to be exceeded by future yarns in event that the standard is low.

COMPARATIVE YARN STANDARDS. It may be necessary to make tests of several different yarns in order to arrive at a fair standard in the case of one particular yarn. In any case, the mill will find it useful to make tests of all yarns in order to analyze their comparative processing qualities. The two methods shown in Figs. 5 and 6 will facilitate making such comparisons.

The first method merely plots the stops per hour against the yarns, which in this case are 18/1, 40/2, and 20/1. (The data shown should not be considered as conclusive results for the specific numbers and types of yarns, but merely as illustrations of a method which will develop specific results under specific conditions.)

The second method is a more detailed graph than the first. It compares and details causes of creel stops and their occurrence and plots the total number of such stops against the proper yarn number. The information can be presented in other than graph form; and with it, the knitting superintendent has little trouble in convincing the yarn-manufacturing department of the yarns which should be improved. Impracticable yarns are also revealed.

YARN STANDARD. By comparing the results on 18/1 with those of 20/1, it is seen that the performance record of the former was entirely inadequate. There were too many creel stops, and so the 4.3 stops per hour must be considered a temporary standard of the operating qualities of this construction. The word "temporary" is used because this standard should be bettered if proper follow-up is made by the yarn-production department. Later checks should approach the stops shown for 20/1, or 2.3 stops per hour.

The value of such controls as operating standards is apparent when it is realized what poundage large-feed circular machines may lose because of necessary creel stops. In the case of a 64-feed machine which operates at around 30 lb. per hr., 4.3 yarn stops per hour may mean a cost of approximately $50 per 24-hr. day in lost production per machine. In other words, with a good yarn the machine would produce around $50 more per day in knitted fabrics. Since

OUT OUR WAY
DID YOU SEE THAT BIRD JUMP WHEN THAT BELL RANG? HA-HA! IT MUST HAVE WOKE HIM UP! I WONDER IF THEY WASN'T PUT ON THERE FOR THAT!
THEY PROBABLY WAS, BUT THEY DON'T NEED 'EM THESE DAYS, WITH ALL TH' SAFETY MACHINES THAT YOU CAN'T GET CAUGHT IN!
YES, THEY EVEN PUT SOL-SPEEDI-DRI ON THE FLOOR NOW-- A SLEEP-WALKER WOULD EVEN BE SAFE FROM FALLING WITH THAT STUFF ON TH' FLOORS!
J.R.WILLIAMS
SAFETY FIRST THAT LASTS
T. M. REG. U. S. PAT. OFF.
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A BELL-RINGER FOR SAFETY IN ANY TEXTILE MILL

Another name for safety in textile mills is SOL-SPEEDI-DRI, the white, granular oil and grease absorbent. SOL-SPEEDI-DRI means safety from spattering oil that can spoil the finest fabrics — from falling accidents caused by oily, slippery floors — from fast-spreading fires racing across oil-steeped surfaces.

Spread SOL-SPEEDI-DRI over floors, under spinning, weaving, picking, and carding machines, and it goes to work, soaking up oil and grease as a blotter soaks up ink. It reduces the danger of fire, for SOL-SPEEDI-DRI will not readily burn, even when oil-soaked. Sweep it up, and floors are left as clean and safe as Grandma's kitchen.

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South, Midwest, and West: Waverly Petroleum Products Co., Philadelphia 6, Pa.

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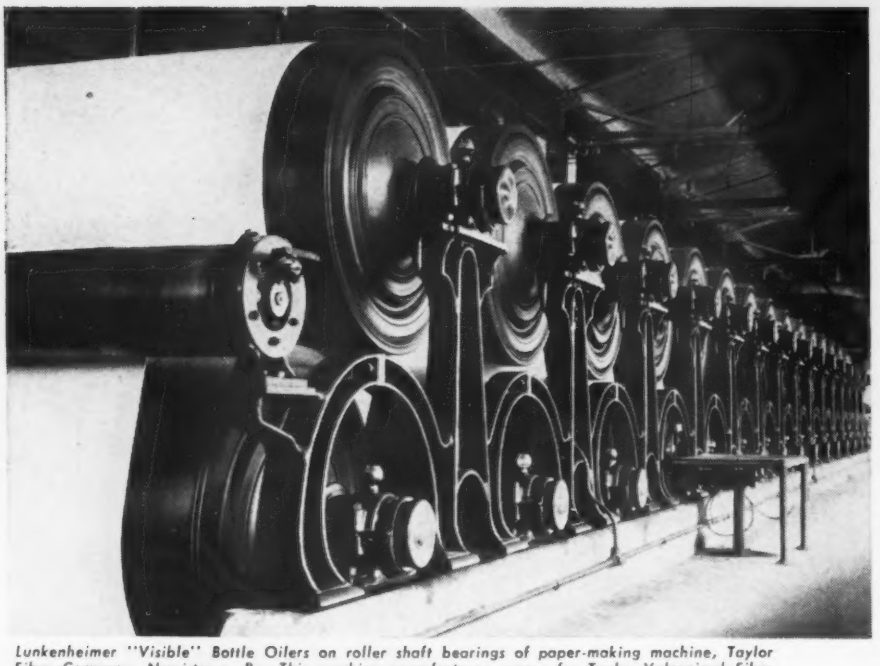
Write for a free sample of SOL-SPEEDI-DRI, and the full story, today. Let SOL-SPEEDI-DRI play "Safety" on your team.



Lunkenheimer "Visible" Bottle Oilers on roller shaft bearings of paper-making machine, Taylor Fibre Company, Norristown, Pa. This machine manufacturers paper for Taylor Vulcanized Fibre and paper-base grades of Taylor Phenol Fibre.

LUNKENHEIMER *Visible*

BOTTLE OILERS *Lubricate Dependably,*

Save Time, Labor, Oil and Trouble...

Old-fashioned hand oiling methods have no place in the otherwise streamlined efficiency and economy of modern industry. Such laborious, costly operations are a steady drain on profits.

Industries the nation over have found an answer to this excess-cost lubrication problem—in LUNKENHEIMER "Visible" Bottle Oilers. These efficient, dependable Oilers are fully automatic, and being always in clear view, can easily be checked. They feed the right amount of oil, in the right way, at the right time, to the right place . . . and only when the bearings are in operation. When machinery stops, the oil feed stops.

With these Oilers there is no wastage or hazard due to oil spilled on floors, no oil drip on product, and none of the loss of time incident to frequent hand oiling. Plant production is speeded up . . . machinery and repair costs lowered . . . power consumption reduced . . . fire and accident possibilities lessened. Descriptive Circular No. 560 available on request.

Fig. 1815—BOTTLE OILER—Globe Body Fully automatic, insures efficient, uniform, economical lubrication of bearing. Feeds oil only when shaft is in motion.

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it is such a simple matter to effect some kind of control over the yarns, whether they are purchased outside or made by the same mill organization, the trend toward closer control of products and processes among the knitting mills is expected to be intensified.

Slashing Techniques

(*Continued from page 135*)

it unsatisfactory, and one fails to notice any advantage in using it.

Two gas burners were installed between the size box and the first cylinder for auxiliary heating at Fulton Bag & Cotton Mills, Atlanta, Ga., E. H. Rogers, manager, stated from the floor. A gain of 10% in drying speed was realized, but the mill experienced considerable difficulty with scorched spots on the yarn.

E. A. Bentley, superintendent at Swift Mfg. Co., Columbus, Ga., reported that he preferred adding a third cylinder to direct use of gas burners.

An infrared installation was tried at Bibb Mfg. Co., Macon, Ga., according to Lawrence R. Brumby, agent; but no advantages in slashing speed or in weaving qualities of the yarn were noted.

Four warps slashed with gas burners and four slashed with only steam heat were tested in the weave room at Hillside Plant, Callaway Mills, LaGrange, Ga. For comparison of weaving qualities, T. M. Hampton, superintendent, reported that the warps on which the burners were used ran 1,500 picks before 50 ends broke, and the warps dried with steam heat ran 7,000 picks before 50 ends broke.

Answers relative to splitting warps between the size box and the first cylinder revealed that, of the six mills reporting this practice, four favored the use of splitting rod at this point of the slasher and two found it undesirable.

Question No. 5. *Give your ideas as to (1) the need for improving present methods of drying yarn in the sizing operation, and (2) ways in which you feel such improvement may be achieved.*

Most of the mills that sent in written answers to this question agreed that improved methods of drying warps were needed. A plan at Swift Mfg. Co. for drying with hot air was described at the meeting by Mr. Bentley. Instead of cylinders, the slasher is equipped with gas flame burners inside three double ducts. Hot air is let out of the ducts through louvers to accomplish drying of the yarn.

The mill's experience has been that this method of drying works more satisfactorily with coarse yarns than with

WHEN

YOUR SINGEING FRAME IS A "DRAG" ON PRODUCTION

SHADING CAN BE TRACED BACK TO THE SINGE

THERMOPLASTICS (LIKE ACETATE) "BEAD" BEFORE CARBONIZING

THEN

speed up and clean up your singe with the new KEMP system

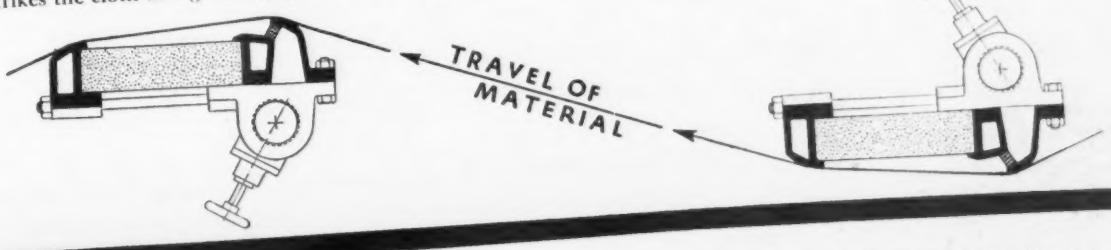
PRODUCTION speed-ups from 50% to 300% are normal results of switching to KEMP's new "radiant-flame compression" singeing. And as extra benefits, many users have reported (1) such consistent and uniform nap removal that shading has become an obsolete dye-room worry, (2) such speed that "beading" (on acetates, nylons, vinyons and the like) simply does not have time to occur, and (3) such efficiency of combustion that fuel costs shrink (depending on your former system) 25% to 50%.

How come? The new KEMP "radiant-flame-compression" burner is designed to be *more* than just a row of flames. The angle of singeing blast, time of contact, and degree of flame confinement are all controlled (see below). And, because the fuel supply is "pressure-carbureted" by the long-famous KEMP carburetor, you can go the limit in getting the most out of each burner.

"RADIANT-FLAME-COMPRESSION" SINGES BOTH SIDES IN ONE PASS

Two "radiant-flame compression" units can completely singe *in one pass* at rates as high as 400 yards per minute.

In each unit the flame, under strong positive pressure, strikes the cloth at a glancing 45° angle, is progressively squeezed between fabric and incandescent refractory surface, and actually carbonizes the nap without burning. Action is so rapid and the flame-sweeping effect so strong, that neither fusing nor burning can occur.



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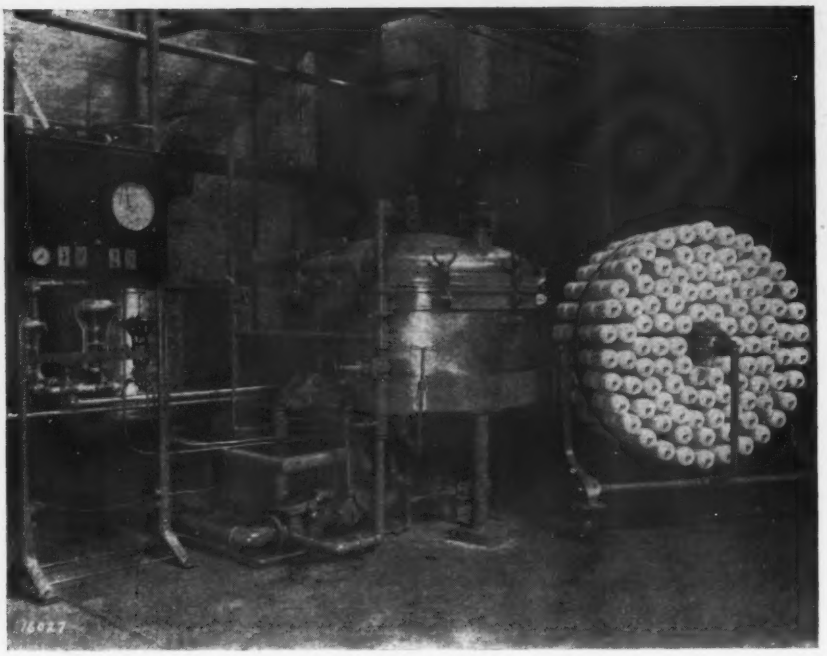

The Answer Is More and More PACKAGE DYEING EQUIPMENT

The picture shows one of Globe's new complete units for package dyeing, with essential controls and the great perforated tube carrier. Overhead can be seen a track which swings the carriers laden with packages up and down long rows of package dyeing machines like this, easing them in and out of the capacious dyeing chambers at the touch of a lever.

Huge as it is, Globe's package dyeing department, is part of a comprehensive array of efficient yarn dyeing equipment, that covers the entire range of modern hand and machine processes required by the varying needs of Globe customers.

Consult Globe about your yarn dyeing problems

We do Package Dyeing on tubes, skein and warp dyeing, warp mercerizing.

Globe DYE WORKS CO.

Yarns we process include cotton, rayon, acetate, worsted, spun rayon, nylon, Aralac, blended and novelty yarns.

FRANKFORD **PHILADELPHIA 24, PA.**

fine yarns. Slashing 4.50s to 8s yarns, with ends ranging from 1,600 to 3,200, the mill has been able to run the slasher up to 60 yd. per min. Since faster running requires more heat, it has been found desirable to hold production at 45 yd. per min. to prevent the yarn from burning when the slasher is stopped.

One difficulty has been that it is not possible to tie the operation of this slasher directly to the drying requirements of the yarn. Instead, it is necessary to tie the speed of operation to effective control of flame and temperature for the most efficient use of the slasher. While it is possible to set the temperature within a range of 100 to 600° F., more effective use of the slasher probably would result from installing a variable-speed drive and control. At present, the cost of drying with hot air is approximately $3 per hr.; whereas, the same drying with a three-cylinder slasher costs $6 per hr.

Question No. 6. *Discuss the slashing of synthetic yarns and blended yarns.*

Slashing rayon is more or less a matter of trial and error with various gums and dextrins, reported H. T. Gilbert, Athens Mfg. Co., Athens, Ga. He has obtained good results from corn starch broken down by boiling or by an enzyme. Either a two-cylinder or a three-cylinder slasher works satisfactorily. The most important problems encountered are elongation and shedding.

Question No. 7. *Give your practice in connection with the operation and maintenance of tying-in machines, either stationary or portable. What practices have you found most helpful to reduce rolled or crossed ends, to replace broken ends or patterns, etc.*

Written answers to this question were supplied by 16 mills. Mill No. 1 wrote that it believed that most rolled and crossed ends were due to the operator not doing a good brushing job on the pattern and to having a poor lease on the warp. When ends are broken, they generally are laid in pattern. If the ends are tied to the heddle eye and drawn through the drop wire, rolled or crossed ends will be practically eliminated.

On the operation of four stationary tying-in machines at Trion, Ga., D. B. Maffett reported from the floor that for each machine he uses an operator and a helper. Maintenance of all four machines is the responsibility of one man. Once each week the machines are disassembled, cleaned with Tynol cleaning fluid to remove any size clinging to the machine parts, and reassembled. At the beginning of each shift the machines are cleaned, with-

A HIGHER PRICE FOR YOUR WASTE OR LESS WASTE OUTPUT . . . .

Rayco engineers are prepared to give you a practical answer to this question by making a free in-the-mill waste survey and analysis which will help you accomplish the following:

1. Reduce unnecessary waste output.
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out disassembling, with fluid and compressed air.

To reduce rolled or crossed ends, Trion uses leases on the loaders. Patterns are leased on the machines. The yarn is combed and held perfectly straight by means of plush clamps until the clamps are secured to the support. Two steel rods are used to separate the pattern yarns, and these rods are pulled carefully over the loader to the carding box. It is necessary that the yarn be not disturbed—brushed, etc.—after this operation. With the weight of the carding bar resting on the yarn, the ends are tied in the drop wires. The operator's helper pieces up and draws the drop wires into the reed. The operator is instructed to refuse to tie in the pattern until every detail is correct; thus, he is held responsible for his own and the helper's work.

Two sources of trouble experienced at Trion consist in rolled ends caused by too many ends per dent on heavy yarn counts and rolled selvages, which can be prevented by running the yarn about 1 in. in from the beam heads before doffing the slasher.

One stationary and three portable machines are used at Muscogee Mfg. Co., Columbus, Ga., for tying-in three- to five-harness warps, Jim Cooper reported. Warps are leased at the looms and taken to the knotter room for tying. Weavers and smash hands are responsible for straightening the leases. The three portable machines tie for 752 looms on towel goods.

Mill No. 2 wrote: "We use three selectors—Nos. 5, 6, and 7. The No. 7 selector is used for the majority of our work. Our average yarn number is 15s."

Question No. 8 *What method should be followed in changing blankets on squeeze rolls?*

The practice of 14 of the 15 mills that sent in written answers to this question is to trim slasher blankets as they wear.

Mill No. 12 wrote: "We run a 5-yd. wool blanket on our slashers. The blanket weighs 13 oz. per yd. and is 60 in. wide. We do not boil the blankets. As they wear, we cut a round off the end. We find that after the blanket has become worn and a couple of rounds have been cut off, the rest of the blanket has thin, worn places in it.

"In addition to the wool blanket, we use a base of four coats of white lead and seven rounds of white cotton duck (9.64 oz. per yd.). The cloth and white lead last approximately one year. The wool blankets will last 4 to 6 weeks, running 144 hr. per wk."

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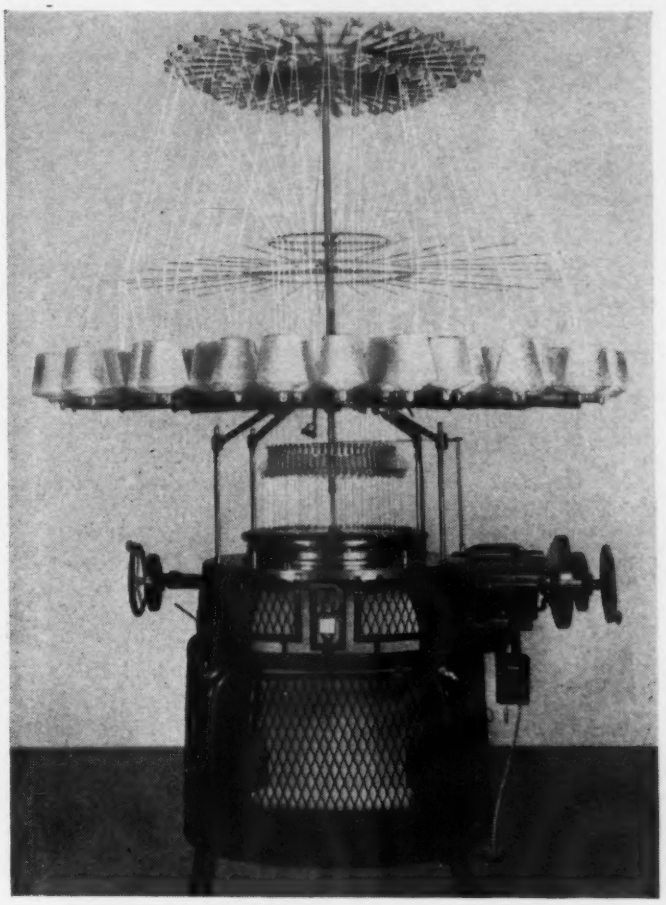

CRAWFORD Stop motion applied on BRINTON Knitting Machine

Specify the NEW CRAWFORD Electric Stop Motion

Don't handicap production of the marvelous new knitting machines by having them equipped with inferior stop motions. There's a new model CRAWFORD Electric Stop motion that'll bring out the best in your machines.

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HILD Floor Machines

Left—HILD Tank Type Shower-feed Floor Machine

Right—HILD Plain Handle (Standard) Floor Machine

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HILD Floor Machines speedily scrub open areas in lanes between machines . . . yet are easily guided into hard-to-reach spots under and around machinery. They are sturdily built for long, trouble-free service.

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Card-Room Cleaning

(*Continued from page 127*)

100 ft. per min., and to make a complete circuit every 27 min. The three-bladed, high-velocity fan was set to blow against the ceiling at a 45° angle, thereby concentrating a stream of air ahead of the moving unit.

When the cleaning unit was completed and ready for shipment, the Erwin mill at Cooleemee was experiencing a shut down and permission was obtained from Salisbury Cotton Mills to install the unit in their card room. The first unit was successful there, and a complete installation was made.

Installation at Erwin followed the Salisbury installation. Since the card room had not been operating for several weeks, the accumulation of lint was tremendous. However, the cleaner was started while the cards were standing. On the first trip, the effect was like a tornado of rolling lint which fell to the floor in 10 to 12 in. masses. In two complete cycles the fan blew away the three week's accumulation of lint so that the cards could be started. The cleaner, thus, was started and remained in action from the time of installation to the present, without additional hand-cleaning of ceiling, pipes, fixtures, or walls.

CLEANING EXPERIMENTS. Many experiments and changes were made during the preliminary development work, an important part of which was conducted at Salisbury Cotton Mills. When the Erwin company first asked the American Monorail Co. to install a mechanized cleaner in the card room, the engineers studied the possibility of using the standard monitor cleaner. This course was rejected because the monitor was designed to throw currents of air in two directions which, if done in the card room, would result in a strong spray of air upon the cards themselves. A new fan design which would concentrate the air upon the ceiling had to be made.

After designing the fan, the engineers set the first fan rigidly to the trolley, with its axis parallel to the track length. After a little observation, however, the fan was equipped with a pivoted mounting which permits the fan to be set at any point within 180° of the vertical axis. Flexible fan settings resulted; and with special settings of the fan, the mill can do special cleaning tasks.

For example, during the lunch hour at Erwin Cotton Mills, the fan is stopped momentarily and turned on its axis by an adjustment of the mounting. It is then restarted, and the stream of air blows in a new direction to clean

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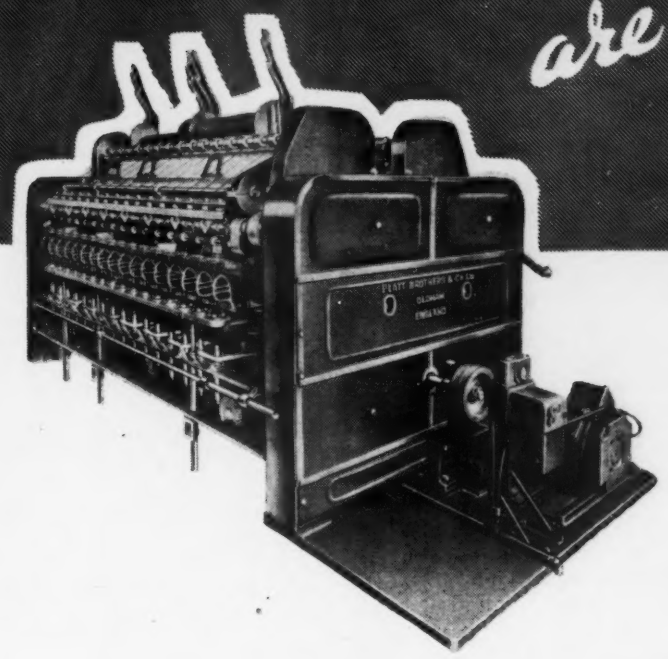

in offering

COMPLETE RANGES
of
MODERN MACHINERY
for the manufacture of
WOOLEN YARNS
by the

CONTINENTAL, ENGLISH, SCOTCH, AND AMERICAN SYSTEMS

There is an up-to-date machine available for every purpose throughout the scouring, drying, blending, preparing, carding, combing, spinning and doubling processes.

NEW PATTERN

RING SPINNING FRAME
FOR WOOLEN YARNS

The advantages accruing exemplify the new pattern Ring Frame.

★ 1 Continuous spinning for all grades of wool, kindred fibres and their mixtures for full warp or weft yarns.

★ 2 High production from minimum floor space.

★ 3 Low labor costs.

★ 4 Large packages and fewer doffings.

★ 5 Mechanical simplicity.

PLATTS ARE SPECIALISTS IN THE MANUFACTURE OF **AXMINSTER CARPET LOOMS** OF ALL WIDTHS, OF THE DOUBLE NEEDLE, SINGLE INSERTION SPLIT SHOT TYPE.

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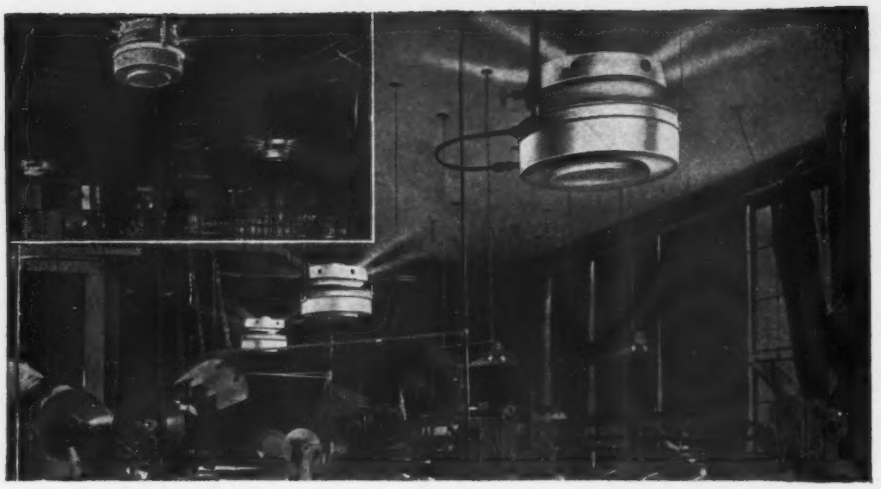

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the opposite sides of columns, and the inaccessible areas of walls and windows.

Another change from the original design was made at Erwin. To begin with, the cleaning unit carried two fans. The smaller fan was installed in order to direct a moderate stream of air upon the cards. To some extent, the use of the smaller fan was successful. However, under present conditions the extra fan is unnecessary at Erwin; and the practice is to use the single larger fan in various positions, rather than to use both fans.

For example, the larger fan shown may be turned to an angle of 45° to the floor on special occasions. At this angle, the fan will clean the cards and adjacent floor-areas. Of course, this method of cleaning is practical only when the cards are idle.

MIXING OF STOCK. One other interesting feature during the installation at Erwin concerned the variety of stock which was processed in the card room. With white and colored stocks on the cards, the company feared that the installation of a blower would cause some mixing of stock. However, such mixing did not occur. The reason for the fan's success in this respect seems to be that the fan completes a circuit of the card room often enough to prevent any large formations of lint. Where lint does not accumulate, there are no slugs or mats of cotton to fall into the cards. Consequently, no difficulties in quality or stock-mixing were encountered.

An unexpected feature of the installation turned up in the new attitude of card-room personnel. The cleaning personnel was expected to welcome the advent of a mechanized cleaner, but the company did not expect such a general boost in employee morale as occurred shortly after the installation. General feeling among the employees was that the new system maintained a cleaner card room and improved the working conditions of the department.

Chrome Plating

(*Continued from page 141*)

does not crack or chip, is very easy to clean, and does not discolor.

Rings (Fig. 4), drafting rolls (Fig. 5), take-up rolls, and other wearing parts of spinning frames are being chromium plated to great advantage. It has been the means of bringing these machines to top speed in half the normal time when starting up.

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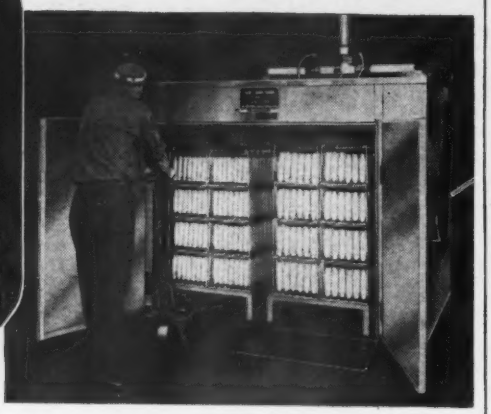

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NO CONDENSATION

Uniform moisture is a characteristic of "H-W" Conditioning Equipment, assuring complete penetration of the yarn.

Another desirable result of the perfected control, is the absence of any dripping of moisture from the roof of the conditioning chamber. There is absolute control of temperature, humidity and time of operation.

Write for full information on the "H-W" CONDITIONER.

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STERLING RING TRAVELER CO.

FALL RIVER, MASS.

plated before the initial installation. A further economy in the use of these tensions has recently become available by the use of detachable wear members (Fig. 6). These are small chromium-plated jackets which may be snapped onto the individual fingers of the gate tensions without removing them from the machine. The plating is heavier than that on the original tensions. When the jackets begin to show signs of wear, they can be changed quickly because of the snap-on design.

Other applications where chromium is proving its worth in increased and more economical production are on roving rods, lease rods, split bars, disk tensions, guides, breakage-lever wires, and cams.

BUILDING UP PARTS. Parts which have become slightly undersize may be ground true and built up to the original dimensions by chromium plate and will probably outwear the original metal many times. It is often more economical to have new equipment chromium plated before going into service. The cost of grinding and truing up is thus avoided, and all the wear is on the chromium. After an extended life, when the chromium does show signs of wear, it can be stripped and re-plated, thus preventing any wear on the base metal.

Nylon, silk, and various synthetics have a particularly severe abrasive effect on spinning equipment. Here again, chromium is overcoming a serious problem.

Chromium plating is not a cure-all, but properly applied it means a major economy in the operation of textile machinery. Any equipment, small or large, which is affected by wear, abrasion, or corrosion can be vastly improved by chromium. Complete information, however, is required by plating engineers, if they are to give the correct recommendations and make the proper application.

Bleaching

(*Continued from page* 105)

is less marked than the improvement in controls or machines. Caustic soda is still the mainstay of the cotton bleacher, but he can buy it somewhat cheaper now by getting it at 70% concentration instead of 50%, thus saving some freight on water, but requiring special, insulated tank cars for shipping.

Chlorine now comes in tank cars, too, at a cheaper rate than cylinders; but only the largest bleacheries can use it in this form. As mentioned, 100-

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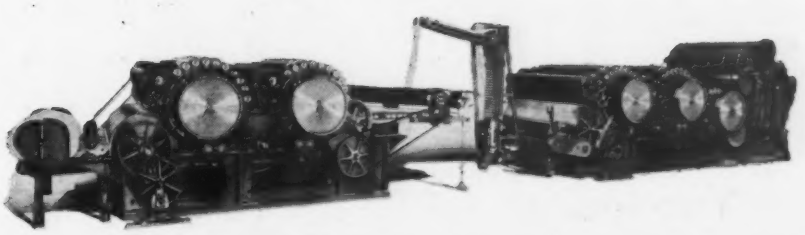
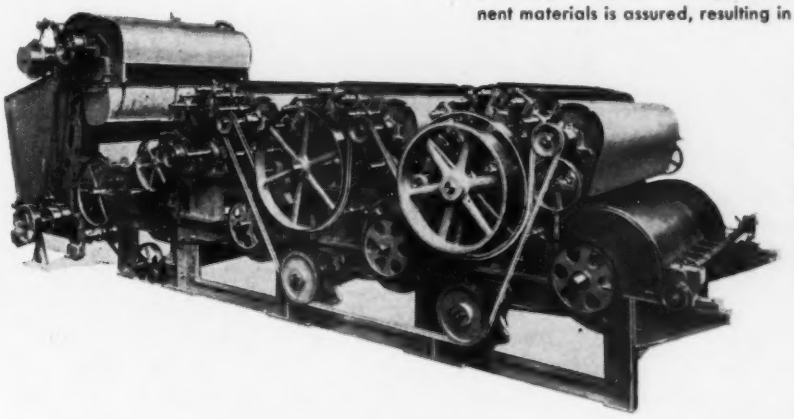
PROCTOR GARNETTS



The DUPLEX GARNETT—*for hard twist worsted threads*

This is really two garnetts with an intermediate feed, which crosses the fibers for the finishing doffer so that more threads will be opened. Not only are fibers opened up much better than is usually possible but production is held at high levels. Output varies with stock, but ranges from 50 to 75 pounds per hour on average hard worsted thread wastes. More perfect blending of the component materials is assured, resulting in much better work, both in quality and appearance.



The 3-CYLINDER GARNETT *for medium twist cotton and rayon yarns and waste*

This Proctor 3-Cylinder 30" x 60" breast type garnett is extremely well suited to medium twist yarns and waste. The worker and stripper arrangement on this machine is very advantageous. Wiring and feeder can be varied to suit stock, while sectional construction permits addition of extra sections or splitting up and converting to a duplex arrangement.

Through the years, Proctor engineers have developed many types of garnetts, each type suited to individual product or output requirements. There are highly efficient Proctor garnetts for the handling of hard twist worsted threads, medium twist rayons, nylons, cottons and a wide variety of other fibers. Production figures run high, but vary, of course, with the type of fiber being garnetted. The metallic wire used in all Proctor garnett cylinders is processed in our own shops on machinery designed and built by our own staff of engineers and mechanics. Fineness of clothing and type of metallic wire used is varied to suit stock being worked. Proctor garnetts are built in sizes to meet individual production needs. Before investing in another single piece of garnetting equipment, let Proctor engineers consider your problem and recommend machinery to fill your requirements.

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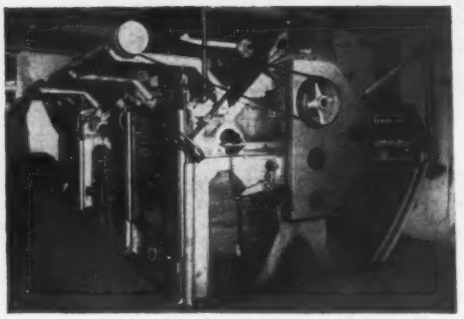

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volume hydrogen peroxide, in spite of its higher price, has been able to replace chloride in the bleach house by combining the boiling off with the bleaching process. Sodium peroxide is a cheaper oxidant and, of course, supplies both caustic and oxidizing power; but it is a rather mean material to handle or store. However, sodium chlorite has replaced sodium hypochlorite (as made by running chlorine gas into soda-ash solutions), in spite of its much higher cost because ClO_2 does the oxidizing instead of chlorine, and at a lower oxidation potential, so that the cellulose itself is not degraded to oxy-cellulose which weakens the cloth and changes its dyeing characteristics. Where close control of tensile strength is required, as on sheets which are sold on specification, the higher cost of this new oxidant has been off-set by savings in "seconds" and the maintainance of the highest quality, both as to whiteness and tensile strength. The latter is controlled by running cuprammonium viscosities on a sample from each kier lot.

"Modern" is strictly a relative word; and while the bleach house of today can show a cash savings of half-a-million dollars a year over the same yardages as run twenty-five years ago, the limit has not been reached until all the gray cloth can be rendered perfectly white, completely absorbent, with no loss in tensile strength, and at higher speeds with fewer men. The objectives remain the same over the years, the methods of realizing them shift from year to year, and it takes a pause after a quarter of a century to realize how far and how fast we have really progressed.

Durability

(*Continued from page 109*)

do not appreciably effect them. Their application is extremely simple. The resins as supplied to the finisher are fully polymerized, and they therefore may be applied to the fabric by normal padding and drying process.

FLAME PROOFING. Fabric requirements for the Armed Forces during the war has stimulated work on development of flame-resistant treatments. Considerable effort has been expended by the research and development laboratories of the finishing and chemical industries in attempts to find a means of improving the flame resistance of cellulosic fabrics without destroying the physical character of the cloth. This problem has not as yet been solved, although considerable headway has been made. Many mil-

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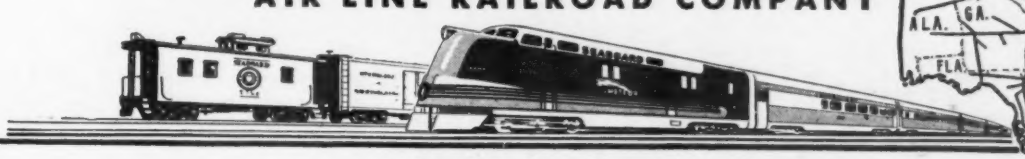
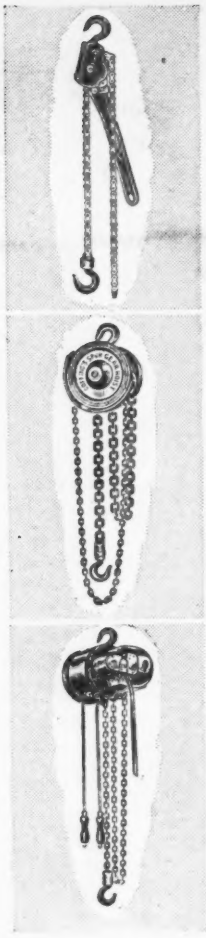


THROUGH THE HEART OF THE SOUTH



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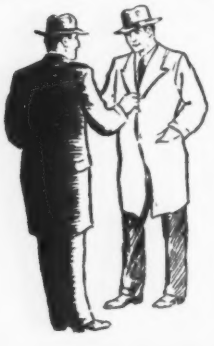

Drummond Flakes are so easy to use! And you couldn't get a flake that suds better! Note these Drummond Soap features: high body with low alkali content . . . leaves fabrics perfectly clean with softer feel, brighter colors, and whiter whites. Try Drummond Flakes and note the difference in your fabrics. Ask for Drummond Flakes or Solid.

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lions of yards of government fabrics were processed during the war years with compounds containing chlorinated paraffins or polyvinyl chloride in combination with antimony oxides and other pigmenting materials. Effective flame-resistant treatments were produced in this manner; but the process destroyed, to a large extent, many of the physical characteristics of the fabric. By this treatment, it is necessary to deposit on the fabric 40 to 60% of solid material. This closes the interstices of the cloth and imparts considerable boardiness, destroys surface luster, and seriously alters the color of the fabric. For these reasons, the use of this process is limited to a narrow range of fabrics. More recently, flame-resistant treatments have been developed which contain no coloring matter or pigment and which effect the hand of the fabric very little. Although these treatments are more durable than are obtained with ammonium salts, they still do not stand laundering to a satisfactory degree.

WATER REPELLENCY. Water-repellent finishes have undergone considerable improvement within the past few years. Up until recently, the most common method for applying water-repellent treatments was to precipitate upon the fabric aluminum or lead soaps. This involved a two-step process consisting of an application of a water solution of the metal salt and an after-treatment with a sodium soap or an emulsion of soap and waxes. The effect is now accomplished in a single-bath process in which a compound consisting of an emulsion of aluminum salts and waxes is used. With this process, very good water-repellent properties are imparted to the fabric. They are not, however, of a durable nature.

Durable-type water repellents were used in huge quantities on government fabrics during the war and are now proving their merits on a wide variety of civilian fabrics. The compounds which have been most generally accepted for this type of work are long-chain alkyl pyridinium salts These products are applied to the fabric from water solution. In order to form a water-impermeable film, it is necessary to subject the dried fabric to elevated temperatures in order to split off the solubilizing components of the compound. In this "curing" operation, a certain amount of acid is liberated; and for this reason, it is necessary to neutralize the fabric by passing through a bath containing an alkaline detergent or wetting agent. The water-repellent

(*Continued on page 215*)

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FINE WOOLEN & SPECIALTIES

ESTABLISHED 1904

Falls Yarn Mills
WOONSOCKET, RHODE ISLAND

(*Continued from page 212*)

characteristics of fabrics so treated are retained through many laundering and dry-cleaning operations.

Considerable interest has been exhibited lately in the textile-finishing industry in a semi-durable water-repellent treatment which is accomplished by precipitating from a single bath zirconium or aluminum soaps and oxides on the fabric. Some of these treatments, when properly applied, exhibit considerable resistance to laundering and dry cleaning. This type of finish has been found particularly useful for treatment of acetate-rayon and nylon fabrics, where other types of water-repellent processes have failed to do a satisfactory job.

The limiting length of this article precludes description of every recent development in textile finishing. It does, however, include most of the important processes which have been put into commercial production within the last twenty-five years.

Wool Chemistry

(*Continued from page 114*)

chemical action under such conditions is very vigorous and if not controlled not only disorganizes the keratin of the wool scales but also can completely disorganize the entire wool fiber.

Due to the uncontrolled action of chlorine, early wet chlorination processes produced very irregular results; and so much poor material found its way to the public that the process acquired a bad reputation. As a result, in the early part of 1930, research was started to control the action of chlorine on wool and many improved patented processes were developed in England. The most outstanding was the dry-chlorination process developed for the Wool Industries Research Association by King and Galley in 1933. In this process, dry chlorine is used to react with undyed wool of 10% regain in an evacuated chamber. During the recent war, very successful results were obtained in supplying the English Army with washable wool underwear and socks produced with this method.

Clayton and Edwards in England in 1940 improved the wet-chlorination process by chlorinating wool goods at a controlled pH of 4 to 5. They used formic acid to maintain such conditions. At this pH, wool swelling is minimized, the penetration of chlorine throughout the fiber is lessened, and the action is confined more closely to the outer-scale region.

Quite a number of other processes have been patented using chlorinating agents dissolved in solvents which also minimize the swelling of the fiber dur-

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ing the chlorination. Such processes are the Hall (sulphuryl chloride), the Solvay (nitrosyl chloride), Reichert and Peakes (butyl hypochlorite), etc.

ALKALI HYDROLYSIS. Processes for hydrolyzing the cystine in the wool scales with caustic alkalis were developed in much the same way as a retarded chlorination in non-swelling solvents. The Freney-Lipson process using caustic soda and potash in methyl or ethyl alcohol was developed in Australia in 1939. Also, the Tootal-Broadhurst process, developed at the same time in England, uses caustic in mixtures of alcohols with a petroleum solvent.

The enzyme process using papain was developed at the Wool Industries Research Association by Phillips and Middlebrook. Work by Harris in 1941 at the Bureau of Standards has clearly explained the action of enzymes on wool and has shown that enzymatic attack does not occur if the fiber has not been injured mechanically or chemically. If it has been damaged, very careful control of the action of the enzyme has to be exercised, otherwise complete disintegration of the fiber will occur. According to Phillips, great promise is held out in England at the present time for a combination of the dry chlorination process followed by a papain treatment to produce a very smooth silky non-felting wool fiber.

RESIN IMPREGNATION. The fourth type of shrink-resistant process is that of producing a polymerized resin *in situ* in the fiber. This process is patented by the American Cyanamid Co. using a melamine resin. In this process, a methylol melamine or derivative is padded on the fabric with a suitable catalyst, dried and cured at a high temperature. The Monsanto Chemical Co., has also developed a similar process.

A review of the various processes described briefly above shows that they fall really into two classes. In one case, felting is minimized by damaging the surface of the fiber in some way and in the other by impregnating the fibers with a resin polymer which smooths out the surface and lessens the elasticity of the fiber which has an important effect on felting in soap solutions.

In England, so much research has been carried on in the chlorination process that it has been developed to a point where considerable practical processing has been carried out with excellent results. In consequence, far more washable wool fabrics have been produced in England than here in the United States. The resin process seems to be the one favored here, probably because of the tremendous development of the American chemical industry in high-polymer plastics and synthetic resins. Another reason may be the industrial organization of the textile industries in each country. Today batch processing is not favored in the American system of large vertical organization where in England, with its extensive horizontal set-up, batch processing like dry or wet chlorination lends itself satisfactorily. In this country, through the development work of both the American Cyanamid Co. and the Monsanto Chemical Co., much impetus has been given to the resin processes. The resin is applied after dyeing the fabric and is done with chemicals and equipment which present no appreciable hazard to the textile manufacturer. Resin treatments are getting a favorable reception. On the contrary, chlorine gas, methyl and ethyl alcohols, organic hypochlorites, and inflammable petroleum solvents require special segregated equipment and place such non-shrinkable processes at a disadvantage here in America.

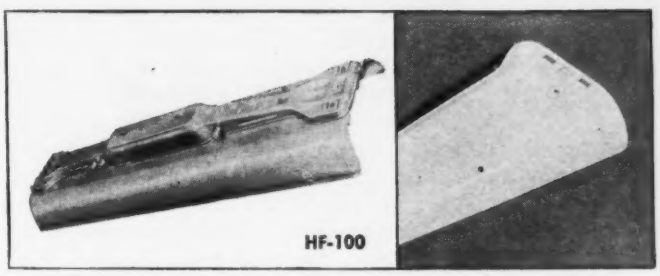
ULTIMATE NOT ACHIEVED. What processes will be developed in the future to replace those now in development will be of considerable interest. According to Speakman, none of the existing processes is the ultimate in a desirable method for reducing the felting character of the wool fiber. Instead of fiber damaging or resin impregnation, he believes the wool fiber itself should be a part of a resin polymer by anchoring the resin to the main polypeptide chains of the wool molecule. He has demonstrated this idea in the reaction of wool with anhydro-carboxyglycine. This process is not practical for textile production but is most interesting from a fundamental-research standpoint. Harris has also carried out research in a similar direction with his work on chemically modified wool of enhanced stability, published in 1942. With the increased stimulation given to research in the wool textile industry at the present time, there is no doubt that interesting practical advances will be made in the future for producing superior types of washable wool fabrics.

It has been impossible to mention all the advance that has been made during the past twenty-five years in the chemistry of wool and wool processing. Only the significant milestones along the way which seem to the writer to have contributed in placing the wool industry on a more scientific chemical basis have been mentioned, and even then in a very brief manner. Much credit should be given to the men who have been mentioned and many others whose contributions could not be touched upon in this brief article.

SYLVANIA NEWS
TEXTILE EDITION

DEC. *Prepared by* SYLVANIA ELECTRIC PRODUCTS INC., Salem, Mass. 1946

MAINTENANCE NO PROBLEM TO TEXTILE PLANTS WITH NEW SYLVANIA FLUORESCENT FIXTURES



Here's one of Sylvania's revolutionary, streamlined industrial fluorescent fixtures. Not one nut or bolt need be removed for complete servicing! Reflector is Miracoat finished—baked enamel, hard, durable. Miracoat will not chip or flake off. Gives gleaming white, uniform surface—easily cleaned with a cloth.

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Sylvania has, therefore, designed fixtures of extreme simplicity, yet of the sturdiest, most efficient design. All parts are easily removed for cleaning. No need to worry about getting the Miracoat-lined reflectors mixed—they're completely interchangeable!

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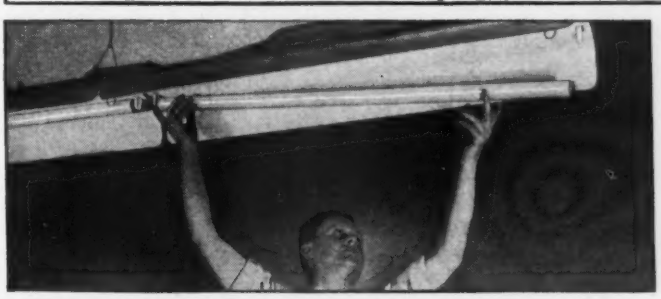

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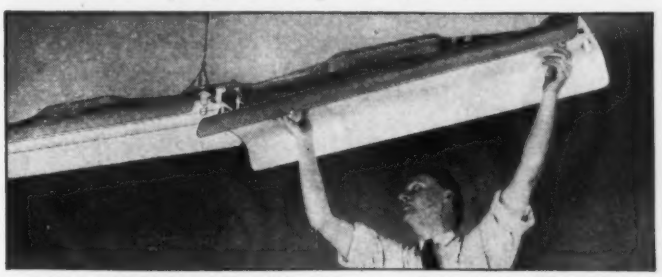

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Silicone News

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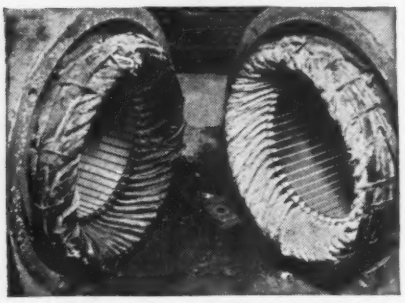

Class B Insulated Motor failed after 3760 hours at 200°C. | *Silicone Insulated Motor failed after 5178 hours at 300°C.*

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HIGHLIGHTS: *Adjust driving pawl by setting in center of tooth—Check pick-wheel movement by chalking one tooth—Always discard sprung or cracked wheels—Installing safety pin in slotted arm helps maintain adjustment.*

By H. E. WENRICH

NUMEROUS DIFFERENT TYPES of pick-wheel assemblies have been used on rayon looms. Essentially, the basic function of the pick wheel, regardless of type, is to take up the fabric as it is woven. This is accomplished by means of a pick pawl and by a hold pawl which holds the pick wheel in place after each movement of the pick pawl.

Some of these devices are very simple, being secured to the rocker shaft by means of clamps and studs and working with the oscillating movement of the shaft. As the lay moves forward, the pick pawl moves forward, catching a tooth of the pick wheel. As the lay moves backward, the pawl is pulled back, completing a one-pick movement. At this point, the hold pawl engages a tooth of the pick wheel and holds the pick wheel in place, allowing the pick pawl to continue on for the next pick. Holding pawls are of various types. These are placed at either the top or at the bottom of the pick wheel. When placed at the bottom, a spring or heavy weight action forces the hold pawl to function; but from a top position, a gravity fall usually answers the purpose of hold-pawl action admirably.

ADJUSTING PAWL. When adjusting pawls, move the lay forward to front center so the pick pawl will complete its full front movement. Set the pawl blade (or pawl edge on those without blades) in the exact center position of the tooth. Next move the lay to back center to gage the adjustment required for bringing the hold-pawl blade (or hold-pawl nose) in exact center of the pick-wheel tooth. Should the hold-pawl blade be off center, make necessary adjustments on both pick and hold pawls.

When the loom is operating, a check on correct pick-wheel movement can be made by chalking one tooth on the pick wheel. As the wheel is picked around, the tip of the thumb is placed lightly on the teeth and the number of teeth taken up counted for a complete revolution. If the take-up is excessive or for too few teeth, it can be detected instantly.

Pick wheels that are cracked or

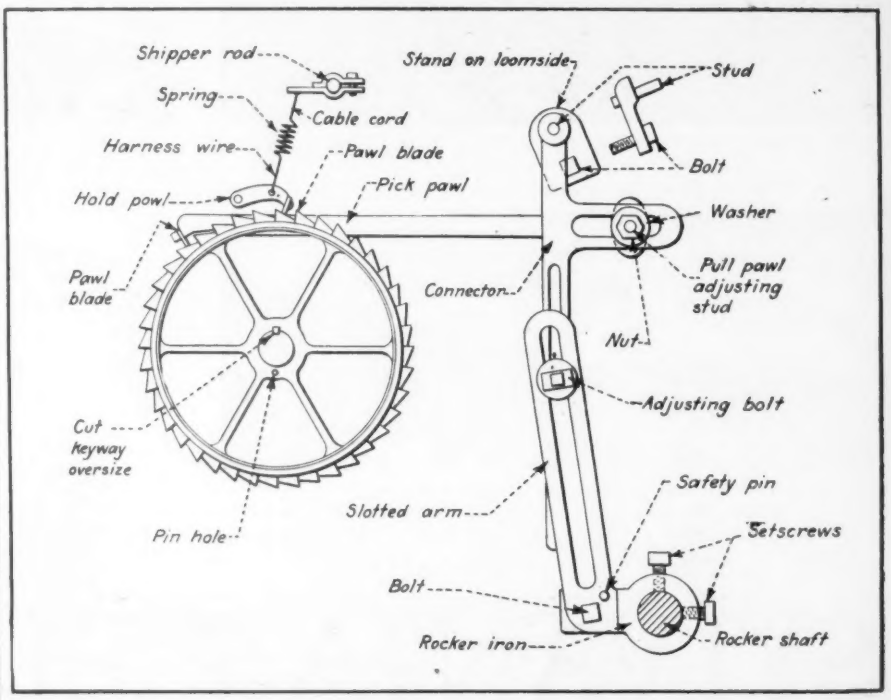

Fig. 1. Careful adjustment of pick-gear assembly is necessary to assure smooth, even take up.

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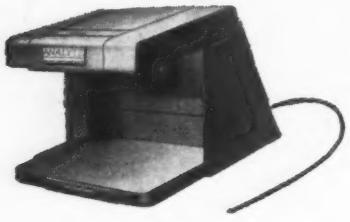

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sprung out of line should be discarded. For quick replacement of pick wheels on the spur pinion hub, keyways should be enlarged slightly on all pick wheels. Thus, if a key on the hub is bent or slightly large, the pick wheel will fit into place without forcing.

Should hub keys shear off, holes should be drilled into the hub and pins inserted, as indicated in Fig. 1. Regardless of how tight the hub nut may be fitted against the pick wheel, if a heavy-pick job is placed into work, there will be a slight letback of the pick wheel unless these hub keys are holding it securely.

When new pick wheels are installed, necessary adjustment for a new pick-change is made by moving the adjustment bolt up or down in the slotted arm and connector shown in Fig. 1. Moving the bolt up gives a long sweep for a low pick. Moving it down gives a short sweep for a high pick.

Setscrews fix the rocker iron to the rocker shaft; should these setscrews be loosened, irregular marks will appear in the woven fabric. Likewise the lay-sword-foot setscrew must be kept tight to prevent similar marks in the cloth. When setscrews are loose, the pick wheel movements become erratic. Whenever tight or loose marks appear in the cloth for every inch, such marks will have been caused by improper pick-wheel take-up. An aid, when constant adjustment is required, can be effected by inserting a safety pin in the slotted arm and in the rocker iron, as shown in Fig. 1. Drill the required hole off-side from the bolt. Should the bolt be insufficient to hold securely, the pin prevents lost movement to the slotted arm. Should a longer sweep be desired on the connector, it can be secured by moving the stand on the loom side to a different position, either front or back. When stand studs become worn, replace with new studs.

TRI Meeting

(*Continued from page 149*)

Dr. Paul exploded the claim made by many that there is considerable difference in the rate at which infrared will dry different colors of cloth. The difference between white and black, he said, was only about 15%. Differences in texture can cause variations as great.

CELLULOSE THEORIES. "Studies in the degradation of cellulose fibers have led to a new concept of cellulose structure and a new method for making rayon," stated Eugene Pacsu, of Princeton. The acid resistance of the powdery residue from cellulose that has been degraded by acid has led to the belief that "the primary action of acids is not destruction of the ordinary bonds in the long chains" of molecules. Practical application of this theory might radically alter processes in manufacturing rayon and might permit "any cheap source of cellulosic material" to be used.

"Functional engineering is in the saddle," said A. G. Ashcroft, director of research for Alexander Smith & Sons Carpet Co. and newly elected TRI vice president. "It will break upon us with full force when the change to a competitive market develops." He touched on the growth of research workers from 25,000 in 1921 to 100,000 today. The textile industry "must now make a greater use of the scientific forces already being utilized by newer industries," he said.

"The first steps in the participation by the textile manufacturer in the trend toward functional engineering of products is the organization of a new team," he claimed.

The case for basic research was presented by Hugh M. Brown, dean of the textile school at Clemson. In textiles, he said, "We find applied research predominating . . . At long last the textile industry is becoming research minded."

"The science of high polymer," M. T. O'Shaughnessy, of the Polytechnic Institute of Brooklyn, said, "still has some problems unsolved. Much fundamental work is needed on measuring the ratio of crystalline to amorphous material in a fiber, the degree of perfection of the crystalline order, and the extent of 'orientation' of the crystallites."

A. V. Tobolsky, of Princeton, continued the discussion of fibers with a discussion of creep, stretch, recovery, and other behavior.

Improvements in the kelly hook of jacquard heads in heddles were credited to metallurgists by C. L. Mantell, vice president of United Merchants Laboratories, Inc. He told of microscope studies of metal in kelly hooks which solved the problem of excessive breakage. Investigation of plated steel heddles showed poor procedures compared with the automotive industry. Final solution to heddle corrosion, however, came by adopting chrome-nickel steel.

FABRIC STABILIZATION. "Research has been responsible for the methods developed for stabilizing rayon," said R. W. Powell, of Bradford Dyeing Association. He discussed the methods developed as follows:

"There are three main types of chemical treatment available for the

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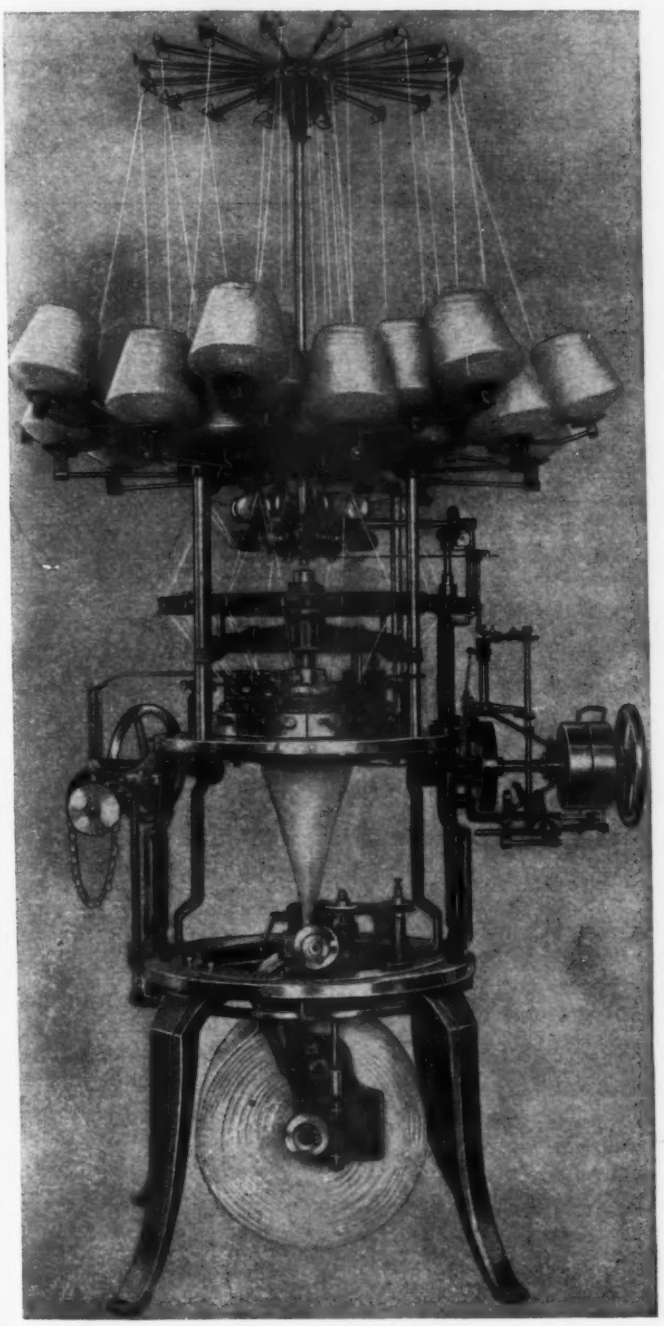

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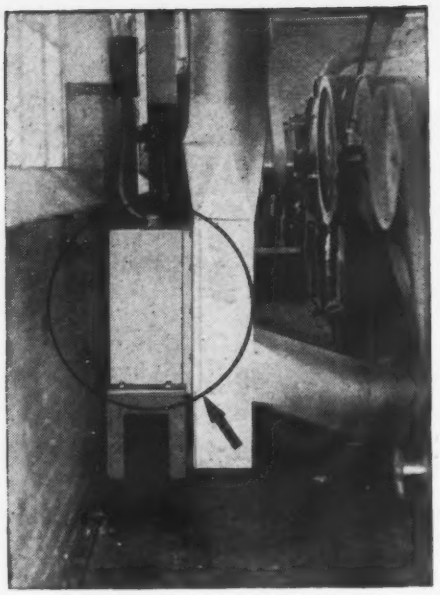

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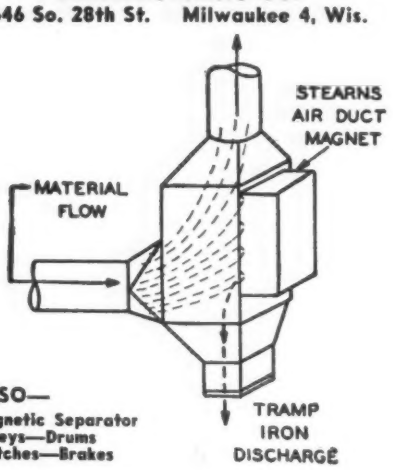

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production of stabilized and shrunk finishes on fabrics composed of viscose rayon, and various blends of viscose rayon with acetate, cotton, wool, Aralac, and nylon. Not all of these treatments are suitable for application to each and all of the blends noted and the suitability of any particular treatment must be determined before any large yardage is run.

RESEARCH NOW! "The industry is now faced with the realization of the great need to build rapidly a wealth of information," said W. J. Hamburger, director of the Fabric Research Laboratories, Inc. He said, "The textile industry is now faced with the necessity of producing fabrics which are engineered to specific end-properties, such as: (1) warmth without weight; (2) water repellency with the ability to 'breathe'; (3) resistance to abrasion; (4) resistance to creasing; (5) resilience; (6) resistance to mechanical distortion; (7) resistance to shrinking, and many others of varying degrees of importance.

"Strength has been, and still is, the 'overworked criterion' of textile performance. Alone it throws very little light upon the applicability of the material under consideration, yet it has commonly been used as the sole criterion of approval or rejection of textiles.

"To intelligently evaluate fibers, yarns, and fabrics, the load-deflection-time relationship must be evaluated and properly interpreted. Textile structures are subjected to various types and rates of loading. Tensioning, compressing, bending, and twisting are examples of common types of loading occurring in everyday use for both industrial and apparel textiles. These loads may be applied in many ways."

"Research is a strong shoulder behind the wheel of production," said H. Wickliffe Rose, of American Viscose Corp., chairman of the TRI board of directors. "The ideological warfare, in which industry is now involved, threatens the capitalistic system by destruction of the ability of corporations to make profits. Caught in a squeeze between rising wages and costs and price levels controlled by government, management is forced to consider more carefully than ever before the means for making a profit. The higher wages can be justified by higher productivity; otherwise, they only contribute to the inflation which all wish to avoid. Greater productivity partly rests in the will of the workers. It depends also, to a considerable extent, on research."

At the TRI luncheon meeting, Gen. E. B. Gregory, retired, former Quartermaster General, spoke on the part played by textile research in winning the war. He cited examples of developments in arctic clothing in which warmth without seriously affecting mobility was most important, of flameproofing, and of shrinkproofing.

Moisture migration during drying is divided into three parts, stated R. H. Wilhelm of Princeton and the TRI research staff. In the first stage of a thoroughly wetted fabric, "the rate of water removal is controlled primarily by the rate of supplying heat and by the resistance to moisture migration of the air film above the water layer." In the second period sufficient water has been removed so that air has forced its way into the space between the fiber. In the third period, the excess liquid water has been removed and the equilibrium saturation value of the fibers has been reached. Thereafter, water is removed by diffusion from within the structure of the individual fibers and from the fibers to the surface of the fabric.

Terry Weaving

(*Continued from page* 147)

bar of 1. Repeat second bar of 1, but omit the roller underneath No. 2 finger as it is not required that any picks be crammed.

12. 6-picks cutting line: This can be aided by using the multiple shuttle boxes and introducing colored filling. However, there is great danger of this colored weft being dragged into the cloth while weaving the other portions of the towel. Instead, the preferred method is to cause a crack across the cloth by using the terry motion for two picks. If this does not produce a mark clear enough, use the terry motion for four picks. Three bars are needed for these six picks as follows: First bar with a roller underneath finger No. 1 which gives plain cloth; second bar with roller under finger No. 1 omitted, which will operate the terry motion and make the crack in the cloth; third bar same as first bar giving six picks of plain cloth.

That completes the chain. It is important when putting the chain in the loom, to observe that the chain is working in the right direction, otherwise the cramming picks will be in the wrong place. The cramming must take place when the weave changes from plain to terry. No cramming picks are necessary when changing from terry to plain.

This is the third article in a series on terry-fabric weaving. The first appeared in June 1946; the second in August, 1946.—Editor

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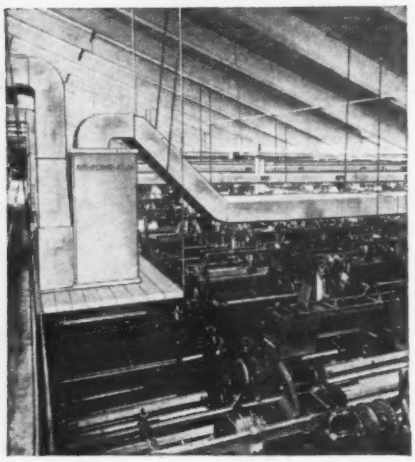

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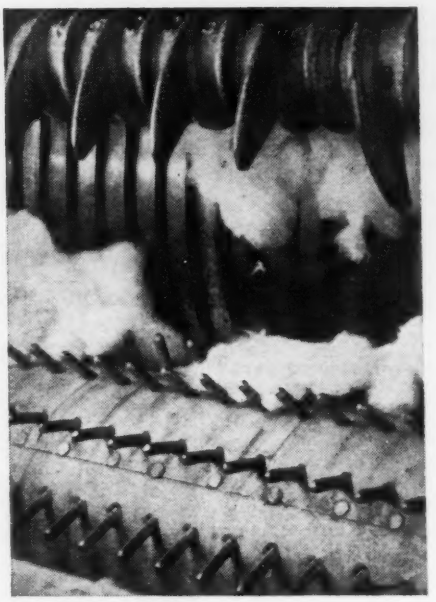
What the RAW-COTTON Man Means When He Says . . .

HIGHLIGHTS: *Cotton trade's use of some words is slightly different from that of the cotton-mill man— Some terms are purely agricultural— Others involve fiber and yarn properties and tests.*

By HARRIS P. SMITH
Chief, Div. of Agricultural Engineering
A. & M. College of Texas



A close-up of the operating parts of a cotton gin, showing the gin saws and revolving cylinders. There are 60 or 80 of these saws per stand. They carry the lint between the ribs as shown and leave the seeds behind.

The definitions presented herewith are largely a reflection of the colloquial meaning of terms as used by raw-cotton men and do not pretend to set up any standard of usage.—EDITOR

MANY INDIVIDUALS outside and many in the cotton branch of the industry, including mill men, are not thoroughly familiar with the terms used to indicate and describe certain parts of the cotton plant, certain fiber properties, and certain operations in the fiber's preparation, although these terms are in common usage by the breeder, the farmer, the ginner, the buyer, etc. The terms most frequently used are listed and defined herewith by groups, rather than alphabetically.

Parts of the Cotton Plant

Square—The bud for the flower. It is a pyramid-shaped, green structure formed by the three triangular bract leaflets which enclose the flower bud.

Flower—The part of the cotton plant that contains the reproductive organs. Also called "bloom" and "blossom." When the flower opens, the petals are creamy white, but toward the close of the first day they turn pinkish. The second day, they are a red color. The third day, petals usually wither and fall from the plant.

Bloom—The cotton flower or blossom.

Bract—Three triangular leaflets found in the cotton square and later at the base of the boll. The bract leaflets completely inclose the square before it develops into a flower.

Cotton Boll—The pod or capsule in which the lint and seed are developed. When mature, the capsule bursts open dividing itself into three to five sections. Each section contains a lock of cotton composed of both seed and lint.

Boll of Cotton—A complete pod or capsule of cotton, either unopen or open, containing seedcotton.

Bur—The empty boll, or hull, after the seedcotton has been removed.

Carpel—Sections of the bur which separate the locks of cotton in the boll.

Storm Resistant—Locks of cotton that are held sufficiently tight, or that cling to the bur in a way to oppose being blown from the bur, are said to be "storm resistant."

Lock of Cotton—The seedcotton from one section of the boll. Bolls may have from three to five locks.

Lint Cotton—Lint (or fiber) after it has been removed from the seed by the gin

Lint—Same as lint cotton.

Cotton Fiber—One or more of the hair-like growths which occur on cottonseed.

Seed and Lint

Inter-seed Fiber Drag—Resistance to separation of seeds in a lock of cotton due to the intermeshing of the fibers in the lock between seeds.

Fiber Drag (*Seedcotton*)—Same as inter-seed fiber drag.

Fiber Drag (*Lint Cotton*)—Resistance to separation between fibers of lint cotton.

Percent of Lint (*Lint Percentage*)—Amount of lint obtained from seedcotton in relation to the total weight of seed and lint. The average is usually about 33% lint and 66% seed.

Seedcotton—Cotton as picked from the bolls before it is ginned. Seed with the original fibers or lint adhering to it.

Cottonseed—Seed after the lint has been removed by the gin.

Cottonseed Cake—Pressed slabs of

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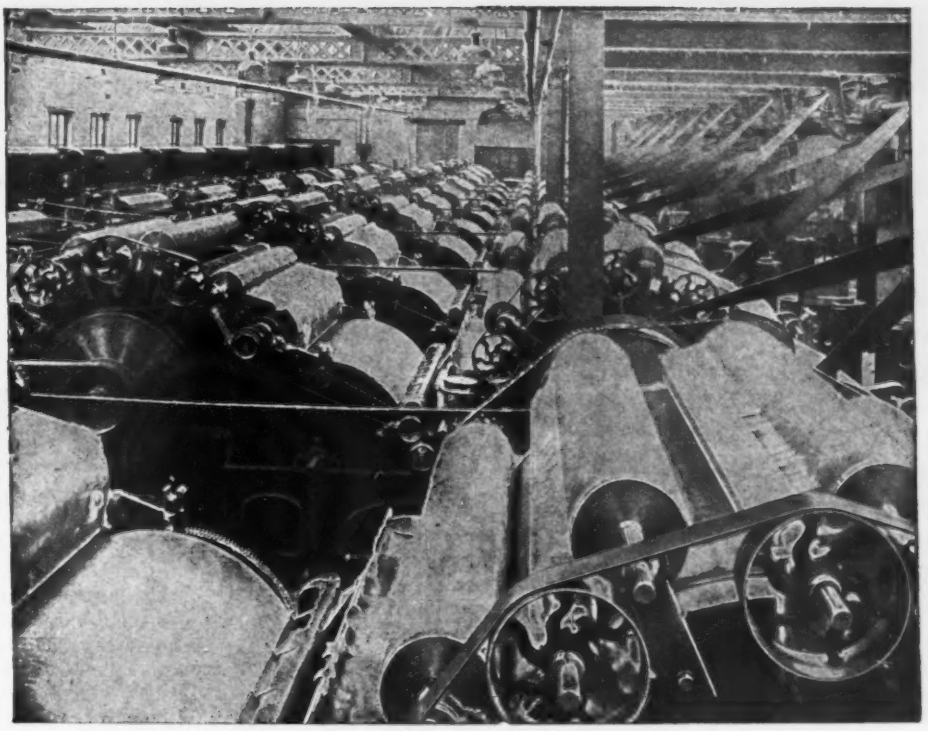

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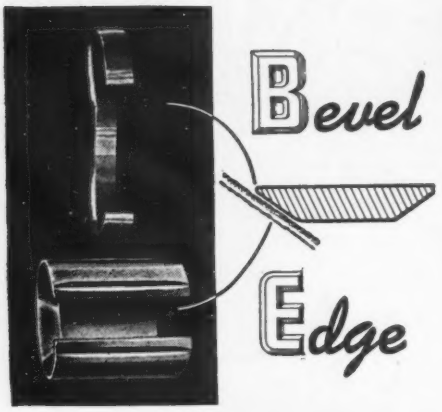

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ground-up cottonseed meats from which the oil has been pressed.

Cottonseed Meal—Ground-up cottonseed cake.

Cottonseed Hulls—Hulls that have been removed from around the kernel or meat of the cottonseed.

Delinting

Delinting—Process of removing from the seed the short fibers and fuzz remaining after the cotton has been ginned.

Delinted Cottonseed—Cottonseed that has been reginned to remove the linters by special delinting saws. The linters can also be removed with sulphuric acid and hydrochloric acid gas.

Linters—The short fibers removed from the seed by a reginning or delinting process.

First-Cut Linters—The short fibers removed in partially delinting the seed by making a light cut. First cuts range from 20 to 50 lb. per ton of seed.

Second-Cut Linters—The linters recovered from the seed on a second run through the delinting equipment. The total linters cut range from 30 to 200 lb. per ton of seed.

Culture

Chopping Cotton—The process of thinning the plants along the row in the field. This is done by hand with a hoe, or, mechanically, with a series of rotating blades. Weeds and grass are also removed.

Flaming Cotton, *also called* **Flame Cultivation**—The use of a torch-like flame from burner guns (similar to blow torch) mounted on and at the rear of a tractor so that the flame flows around the base of plants and kills the grass and weeds along the row without damaging the cotton plant. The machine is not a flame thrower.

Harvesting

Cotton Picker—May refer either to a person who picks cotton or to a machine for the picking of cotton.

Picked Cotton—Cotton that has been picked either by hand or by machine.

Hand-picked Cotton—Cotton that has been picked from the boll by hand.

Snapped Cotton—Cotton that has been picked by having the whole boll (both bur and cotton) snapped from the plant by hand.

Hand-snapped Cotton—Same as snapped cotton.

Pulled Cotton—Same as snapped cotton, but term indicates cotton harvested later than the snapped cotton.

Bolly (Bollie) Cotton—Bolls of cotton which have been arrested in their development by frost or other causes, and which have been harvested unopen or partly open. This cotton is separated from the bolls by a crushing, threshing, and extracting process before ginning.

Mechanically Harvested Cotton—Cotton that has been harvested by either the stripper- or picker-type machine.

Machine-picked Cotton—Cotton that that been removed from the boll by mechanical devices, usually a barbed spindle.

Cotton Sled—A cotton stripper, usually homemade, either one or two field-rows in width, having 6 to 8 teeth about 18 to 20 in. long by means of which the bolls of cotton are stripped or combed from the plant as the device is dragged through the field.

Sledded Cotton—Cotton harvested by homemade strippers having the stripper teeth mounted on the front of a box fitted with sled runners. Most machines of this type now have wheels located to the rear of the center of the sled to lighten the draft. The front end may also be supported by a wheel.

Stripped Cotton—Cotton that is stripped from the plant by a mechanical stripper (or sled). The whole boll (bur and cotton) is removed mechanically instead of being snapped or pulled by hand.

Machine-strpped Cotton — Same as stripped cotton, but more definitely named.

Cotton Stripper—A machine that strips the cotton bolls (both bur and cotton) from the plant. These machines are usually tractor mounted.

Ginning

Cotton Gin—Mechanical equipment for the separation of the lint from the seed. It consists of a series of saws (60 to 80 per stand) which project between ribs into a roll box into which is fed seedcotton. The teeth on the saws catch the lint on the seed and draw it through the ribs, leaving the seed on the opposite side of the rib. The lint is removed from the saw teeth by brushes or air blast. Cotton gin also describes the establishment where these machines are operated.

Saw Gin—A cotton gin where the gin stands are equipped with saws to separate the lint from the seed.

Roller Gin—A cotton gin where the gin stands are equipped with a roller operating in conjunction with a vibrating knife to separate the lint from the seed. Cottons are ginned on the roller gins to minimize injury to the fiber.

Gin Stand—A single unit for the ginning of cotton. A modern gin may have from four to ten gin stands; the gin stand may have from 60 to 80 saws, 12 in. in diameter.

Bale—Lint cotton that is pressed into a rectangular package about 54 in. long, 27 in. thick, and 47 in. wide. The bale is wrapped with coarse bagging material and tied with six flat metal bands. The average bale weighs about 500 lb. Round bales have an average weight of 250 lb. The average gin-pressed bale contains 12 to 22 lb. of cotton per cubic foot. Used in local trade from gin to compress.

Cotton Bagging—A coarse fabric, usually of jute, occasionally of cotton, used to wrap around bales of cotton.

Ties—Flat bands of metal that are placed around bales of cotton to hold bale in compressed form.

(*Continued on Page* 228)

SQUARE CUT

Thread

from

LIQUID LATEX

It's the Better Thread because it's —

1. Made from Liquid Latex
2. Formed with three plies
3. A square cut thread
4. Longer Lengths
5. Softer, Longer Stretch

Now in Production in Our New, Modern Plant

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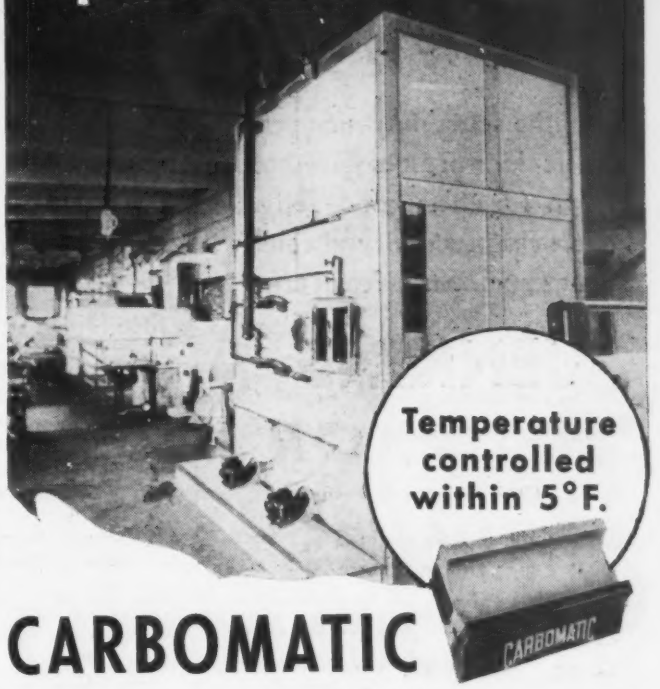
ANDREWS-ALDERFER PROCESSING COMPANY

120 ASH STREET
AKRON 8, OHIO

"has solved our CURING problem"



CARBOMATIC INFRA-RED RADIANT HEAT GENERATORS

• "Our curing oven . . . equipped with two of your 42-inch INFRA-RED burners . . . has solved our curing problem. We find it very efficient . . . are able to control the temperature within 5° at all times."

So writes a typical user of twenty-two Carbomatic Infra-Red burners. In curing synthetic resins, for example, Carbomatic *holds* any required temperature (325° to 400° F.). Carbomatic curing box burners insure absolute temperature control up to 600° F. or higher—doing away with superheated steam and inefficient controls, and providing *uniform* heat penetration of either light or heavy materials.

CARBOMATIC—pioneer in Textile infra-red applications—has developed infra-red gas-fired or electric equipment to speed up production and greatly reduce costs in every phase of modern Textile heat-processing.

Write for Bulletin TW-12.

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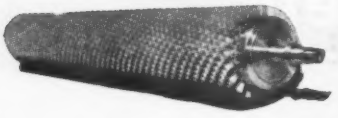
INFRA RED UNITS

IF IT'S INFRA-RED — BE SURE IT'S

IN CANADA
Canadian Textile Engrg. Ltd.
980 St. Antoine St., Montreal

The Greatest Advance In Brush Making Since 1877



From the start, sixty-nine years ago, Jenkins brushes have been known for their good design, honest construction, and consequent maximum efficient life.

JENKINS METLKOR

(Trade mark Reg. Pending)

BRUSHES

opened a new chapter in the history of industrial brush manufacture.

THEIR METAL CORES give them perfect balance and alignment, and indefinitely prolong their life.

BRISTLE—nylon bristle if desired—is wound on the metal cores with flat copper wire and special moisture proof cement, and the bristle can be repeatedly replaced as it wears down.

"METLKOR" BRUSHES for Textile uses include Raising, Laying, Flock and Clothroom Brushes.

Write for two-color, 20 page, handsomely illustrated catalog of the complete line of Jenkins' Brushes.

M. W. JENKINS' SONS,

INC.

Since 1877 manufacturers of all kinds of industrial brushes

Cedar Grove, Essex County, N. J.

(*Continued from page 226*)

Bagging and Ties—Includes both the heavy cloth, jute or cotton, for wrapping the bale and the metal bands around the bale.

Tare—The weight of the bagging and ties about a bale of cotton, usually about 21 lb. per bale; for round bale, 3 lb.

Compressed Cotton—Bales of cotton that have been placed in a heavy press and the cotton condensed. The average standard density ranges from 22 to 31 lb. per cubic foot; used in domestic trade from compress to destination. High-density bales have a density of 32 lb. or more per cubic foot; used on cotton exported to foreign markets.

Compress—Building containing equipment for the condensing or compressing of bales of cotton.

Cotton Cleaner—A unit used in the gin to clean dirt and foreign matter from seed-cotton before it reaches the gin saws. The cleaner is a separate unit from the extractor.

Cotton Extractor—A large unit, usually used at the gin, to separate the cotton from the burs of hand-snapped or pulled cottons and machine-stripped cottons. A few extractor units are mounted on tractors and used in conjunction with tractor-mounted cotton strippers.

Waste—Foreign matter of no value in lint cotton. Consists largely of fine trash and short fuzzy fibers.

Trash—Foreign matter found in lint cotton in the form of leaf, bract, bur, and plant particles.

Bur Shale—Small particles of the bur which have been chipped from the bur in the extracting and ginning processes.

Grading and Classing

Grade—Classification of the lint as to color, trash content, and ginning preparation according to U. S. Department of Agriculture standards.

Below Grade—Cotton of which the grade is lower than the lowest official standard.

Staple—The normal length of a typical portion of the fibers of any cotton usually given in 32nds of an inch, beginning with 24/32nds of an inch. Sometimes, loosely, refers to the fiber itself.

Staple Length—The length of the cotton lint or fiber in fractional parts of an inch, 8ths, 16ths, or 32nds; usually the cotton classer's specified length for a given sample derived from consideration of all the fibers present in the sample.

Short Staple—Any length of staple shorter than $1\frac{1}{8}$ in.

Long Staple—Any length of staple $1\frac{1}{8}$ in. and longer.

Pin Trash—Fine particles of trash found in lint cotton.

Pepper Trash—Particles of trash slightly larger than pin trash that has the appearance of pepper sprinkled on lint cotton; finely broken up particles of leaves and other plant parts.

Gin Cut or Gin Cutting—Fiber or lint that has been cut by the gin saw in the ginning process.

Licensed Cotton Classer—One who has obtained a license under U. S. Cotton Standards Act approved Mar. 4, 1923, to classify cotton and to certify the description of cotton in accordance with the official cotton standards of the United States.

Cotton Classer—One who classes cotton as to grade, staple-length, and character.

Testing and Manufacture

Fineness of Fibers—The size (or in effect the diameter) of the fiber is normally expressed in terms of weight per unit of fiber length (micrograms per inch); also called "weight fineness."

Fiber Length—The distance from one end of the fiber to the other; also a general term used for a sample of cotton analyzed by a fiber array or other method.

Fiber Maturity—Thickness of the cell wall in relation to the lumen, or cavity within the walls. This is not the maturity the farmer means when the bolls are fully open. There are some immature fibers in every boll.

Fibrograph-Mean-Length—The average length of all fibers in the sample, as measured by a photoelectric machine called a Fibrograph.

Fibrograph Upper Half Mean Length—A measure of the average length of all fibers longer than the mean length, expressed in terms of decimal fractions of an inch as measured by the Fibrograph.

Fibrograph Uniformity Ratio—The ratio between the mean length of the fibers and the upper half mean length as measured by a photoelectric machine called a Fibrograph. It provides a relative measure of the length-uniformity of fibers in a given lot.

Fiber Strength—A measure of the resistance of a fiber or bundle of fibers to breakage by tension test. Strength of a bundle of fibers is usually expressed in 1,000 lb. per sq. in., and sometimes as a strength index.

Yarn Appearance—The relative evenness, smoothness, and freedom from foreign matter of the yarn as noted by a visual comparison of a given yarn wound with a designated traverse on a black board of designated size with the standards adopted by the American Society for Testing Materials and available in the form of photographs.

Yarn Strength—A figure, usually in pounds, which indicates the breaking load of a yarn or thread. This is often coupled with the size of the yarn such as 22s, 36s, etc.

Skein Strength—The breaking load of a bundle of threads made up into a skein.

Test Skein—120 yds. of yarn wound around a reel 54 in. in circumference so that the finished bundle (or skein) contains 80 parallel strands. When the skein is removed from the reels and placed on a breaking machine it forms a belt-like strand of 80 ends around small rolls at each end of the skein.

Neps—Small, tightly tangled masses or knots of fibers, usually not larger than a common pin-head.

Motes—Immature seed. They have a small amount of fuzz and/or lint adhering to them.

LOOK TO LEWELLEN

for proved solutions to your speed-control problems
Here's Why-

1 Lewellen knows speed control as a pioneer in the industry.

2 It's speed control lock, stock and barrel with Lewellen. It has been for more than 48 years.

3 Lewellen Engineers have an enviable reputation for "doing the impossible" with speed control. Difficult problems find their way to Lewellen.

4 "Packaged Installations" are not advised by Lewellen when experience dictates that special applications should be designed individually.

5 The efficiency and stamina built into Lewellen Variable-Speed Transmissions, Motor Pulleys, and Automatic Controls have been proved the country over.

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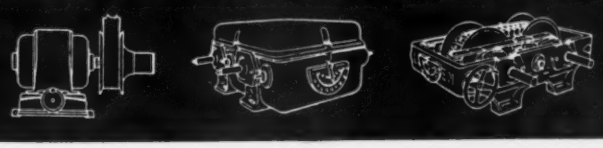
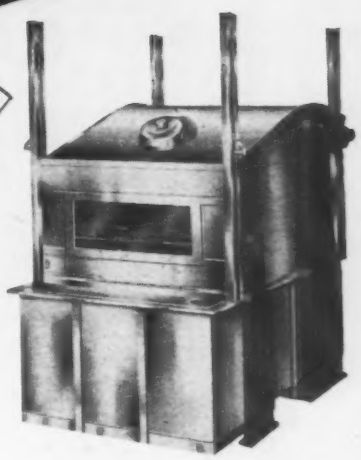
Variable-Speed
TRANSMISSIONS - MOTOR PULLEYS



Important Savings in Steam and Water for TEXTILE DYERS



Fully enclosed stainless steel dyebox

From the day your Blickman fully enclosed stainless steel dyebox goes into operation, your water and heating bills go down. No steam escapes from this box to be dissipated throughout your dyeing room. Boil outs are never needed—you get a thorough cleaning with one quick rinse. It all adds up to conservation of steam—to savings of gallons of water with each change-over. It's easy to pay for this most modern of dyeboxes through operational cost reductions alone. Write for further details.

Send for folder "3 for 5"—showing Blickman Stainless Steel Dyeing Equipment.

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412 GREGORY AVENUE • WEEHAWKEN, N. J.
Manufacturers of stainless steel textile equipment, dye boxes, linings, cylinders, dry cans, rolls, hoods, tanks

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YARN
COLORING

Fast colors
dyed in the
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One ton
per batch

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Dyers and Converters of Synthetic Yarns for All Industries

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News of the month

Rayon Prices Go Up. The leading makers of rayon (both acetate and viscose) raised prices on both filament and staple following removal of OPA restraints. Viscose continuous filament was advanced varying percentages ranging as high as 20% but averaging about 10% on the medium deniers. Viscose staple similarly went up 12 to 20%. Acetate filament was raised 6 to 11%, and acetate staple about 7%. The first of the new lists came out Nov. 12 and others followed through to the end of the month. It is notable that there is considerable variation between companies as to the extent of the advance. On viscose staple for example, some raised prices 5¢, others 3¢. On acetate filament the rise of 7¢ on filament and 3¢ on staple were fairly generally accepted.

Says OPA Erred $10,000,000 in Underwear Cost. Inconsistencies in accounting methods, the omission of vital data, and frequent mathematical errors totaling more than $10,000,000 were found in OPA's survey to establish underwear ceiling prices, according to a report by Ernst & Ernst, made for the Underwear Institute, New York. To arrive at the industry's probable operating expense in 1946, OPA accountants studied the major cost elements of 36 representative mills for the first six months of 1944. It was this study that Ernst & Ernst reviewed, and, according to its report, found erroneous. Concerning the $10,000,000 errors in arithmetic, the Ernst & Ernst report says: "The total cost of yarn included in the total cost to make and sell all products (for the 36 mills) for the year 1944 was shown as $58,083,185. But the 1946 projection of total cost of yarn amounted to $50,986,935, from which figure $7,096,250 was improperly omitted." In November of this year, the report continues, OPA, in a written statement, admitted that there should have been an increase of $2,169,204 on the $7,096,250, which was omitted in the projection of the 1946 expense figures. In addition to these two items, Ernst & Ernst indicate that there were other errors in computation that could total an additional $1,000,000. Roy Cheney, president of Underwear Institute, believes this is the first time that a private enterprise has investigated a government agency. He pointed out that OPA ceilings on underwear were about $1.00 per dozen below mill cost, which drove mills on to other than their regular production items and explains why the consumer has found such a shortage in wanted garments.

"Operation Dixie." The National Labor Relations Board, through Oct. 15, has handled 237 collective bargaining representation elections, or certifications, on CIO petition during the current "Operation Dixie." CIO unions have been successful in 202. Yet the 202 victories, against 35 defeats (most of the latter in textile mills), have extended CIO jurisdiction to plants with a total of less than 50,000 employees. The union still is far from its goal of 1,000,000 new members in the South, set six months ago as a twelve-month objective for 298 organizers operating under a special field staff, headed by Van A. Bittner, and financed by a $1,000,000 organizing fund. Still pending in mid-October were 221 petitions by CIO for elections.

KAE Prospects Bright. Plans for the Knitting Arts Exhibition at Atlantic City during the week of April 28, 1947, are progressing. The KAE has not been held since 1941. Prior to the war, the KAE was held annually; but from now on it will be held biennially in odd-numbered years. This means that a company which fails to exhibit in 1947 will have to wait until 1949

Textile Calendar

AATCC, Silver Jubilee Convention, Hotel Statler, Boston, Mass., Dec. 12 to 14, 1946.

National Cotton Council, annual convention, Galveston, Tex., Jan. 27 to 29, 1947.

Seventh International Heating & Ventilating Exposition, Lakeside Hall, Cleveland, Ohio, Jan. 27 to 31, 1947.

ASTM spring meeting, Philadelphia, Feb. 24 to 28, 1947.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., Apr. 29 to May 2, 1947.

National Association of Hosiery Manufacturers, annual meeting, Hotel Claridge, Atlantic City, N. J., Apr. 28, 1947.

Hosiery Industry Conference, Hotel Claridge, Atlantic City, N. J., Apr. 28 and 29, 1947.

Second National Plastic Exposition, Coliseum, Chicago, May 5 to 11, 1947.

International Exposition of Textiles, Grand Central Palace, New York, June 2 to 7, 1947.

ASTM, annual meeting, Atlantic City, N. J., June 16 to 20, 1947.

balanced for High Speed

High-speed rotation requires perfect balance to eliminate chatter and vibration. Hubbard Tricot Warp Beams are precision-made, carefully balanced to withstand high operating speeds. Smooth running assures longer service and lowered costs.

Light but strong magnesium alloy construction reduces weight for easier handling . . . withstands extreme pressures created by synthetic yarns. Steel liners in head bore give added strength.

Complete information on Hubbard Warp Beams and related products available on request.

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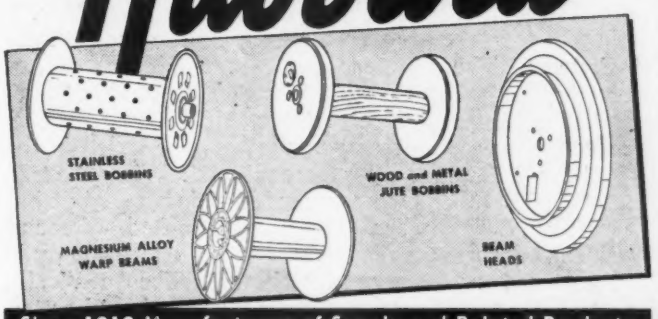
Hubbard



Since 1912 Manufacturers of Spools and Related Products

NEW WOOL OIL CUTS COSTS
Cincinnati, Ohio, Nov. 18 — After carefully evaluating data received from full-scale mill tests, Emery Industries has announced that Twitchell Solube is extremely effective in reducing costs without sacrificing any

Make SOAP Go Further

WITH TWITCHELL SOLUBE 463

Emery has just announced the immediate availability of Twitchell Solube 463, which, after extensive Mill tests shows these advantages on woolens and worsteds:

Easy scourability using less or no soap.

Disperses in cold water.

Efficient lubrication.

Non-staining, non-oxidizing, non-heating.

How to use SOLUBE 463

1. Application . . . emulsion of 4-6 parts water, one part oil applied by your regular methods.
2. Lighter weight woolens . . . scour (and full) with 3 to 5 ounces soda ash/gallon.

   On heavier fabrics, in addition to soda ash, one-fifth normal amount of soap may be desirable.
3. Worsteds . . . scour with normal amounts of soda ash plus one-fifth usual quantities of soap.
4. Knitting Yarns . . . apply as emulsion in preparatory gilling—Twitchell Solube 463 scours readily with synthetic detergents or reduced amounts of soap.

Don't delay, let us know your requirements immediately.

EMERY INDUSTRIES, INC.

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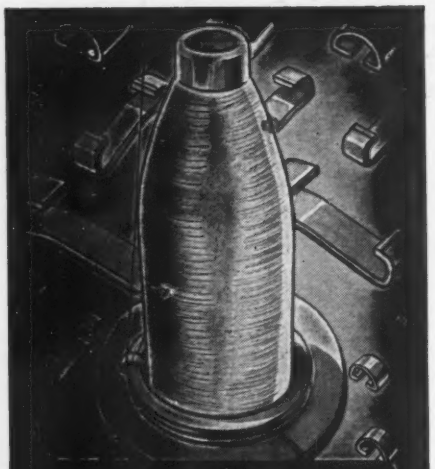
CAREW TOWER • CINCINNATI 2, OHIO
3002 Woolworth Bldg. NEW YORK 7, N. Y. — 187 Perry St. LOWELL, MASS. — 401 N. Broad St. PHILADELPHIA 8, PA.

STEARIC ACID • OLEIC ACID • ANIMAL AND VEGETABLE FATTY ACIDS • TWITCHELL PRODUCTS • PLASTICIZERS



A Pair of Aces

Your Dary Representative and his product, the Dary Ring Traveler, are a pair of production aces.

The Dary Ring Traveler permits increased spindle speed and wears longer with any type or count yarn, for any spinning or twisting job.

Your Dary Representative is always on hand to advise, assist, and in every way serve you.

For sure winners, you can bet on this pair of aces,—Dary Ring Travelers and *your* Dary Representative.

DARY

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The DARY RING TRAVELER CO.

TAUNTON, MASSACHUSETTS

JOHN E. HUMPHRIES, BOX 843, GREENVILLE, S. C.

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H. REID LOCKMAN, BOX 515, SPARTANBURG, S. C.

before it has a similar opportunity. This fact has stimulated suppliers to participate, say the sponsors. From present indications, the approaching KAE will display many operating exhibits.

Army Wants Wool Goods. All worsted mills should cooperate in supplying 10,700,000 yd. of uniform material to the Army during 1947, according to the Woolen & Worsted Industry Advisory Committee of CPA. Delivery schedules released by the Army call for 700,000 yd. in February, followed by a million yards monthly during the remainder of 1947. Invitations for bids on a 10-day basis for 18-oz. olive-drab wool serge have been released.

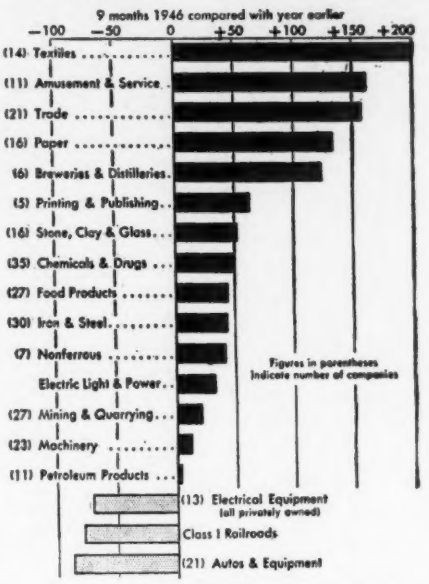
Wool Men Arm Against Foreign Competition. Special call for a series of state-wide conferences of all financial, commercial, industrial, agricultural, and livestock-growing industries presided over by the Governors of the wool-growing states of the Mountain Area, to establish a permanent plan to insure an annual wool production that will meet 60% of this country's average requirements, was urged Nov. 14 by the Wyoming Wool Growers Association. The Wyoming Plan, as it is called, envisions a conference which will discuss present methods of marketing wool as well as necessary protection against the flood of lower-cost imported wool which, wool interests declare, threatens a regional and national depression, if continued.

Urges Price Restraint After OPA. In a bulletin issued to the knitted outerwear industry on the end of price controls, Sidney S. Korzenik, executive director and counsel of the National Knitted Outerwear Association, New York, urged members to exercise restraint and do their utmost to hold the line, while nevertheless acknowledging that some compensatory price adjustments to reflect increased costs will be in order. He also advised that the industry take a long-range view, that it avoid quality depreciation, and that it excercise extreme vigilance as to increased costs.

Urges Modern Cost Systems. The necessity for improved methods in the manufacture and distribution of carded cotton yarns was emphasized by Owen Fitzsimons, president, Carded Yarn Spinners Association, at its tenth annual meeting in Charlotte, N. C., last month. He strongly urged yarn mills to adopt modern cost systems, so as to be in position at all times to determine with accuracy the cost of producing any required count or description of yarn in their normal range. With OPA no longer in control, sellers and buyers again will be faced with observance of the contract rules unanimously approved some years ago by all divisions of the yarn trade.

Fibers Out of Guns. A method of obtaining fiber from yucca and other fibrous plants was demonstrated at Lordsburg, New Mexico, on Nov. 8 and ensuing days. The method, invented by R. S. Chapman, of Los Angeles, consists of a mortar-like "gun" which retains high-steam pressure. Green yucca leaves were sealed in the gun for three minutes. When the trigger was pulled, nothing came out but fiber. After washing in fresh water and drying, this fiber was said to be ready for commercial use. The "gun" also extracted fibers from ramie and cotton stalks in the same manner. The method

TEXTILE MILL PROFITS IN 1946 SHOW LARGE GAIN OVER 1945



In the graphic analysis above, "Business Week" has charted the fortunes of a substantial number of companies grouped by industry. The percentage compares profits for the similar period in 1945. Textile firms show the greatest gain, the 1946 profits being three times those of 1945. The number of companies grouped in the various industries is given in parentheses at the left of the industry named. On the opposite end of the scale from textiles come automobile and automobile equipment concerns with 1946 profits down for a mere 14% of what they were in 1945. In general, the comparisons reflect relative cost of reconversion from war production, as well as effects of strikes, consumer demand, price controls, etc. The figures are based on published company statements, electrical utilities, and "Business Week" estimates.

TEXTILE WORLD'S SYNTHETIC-FIBER TABLE

has been REPRINTED AGAIN

The face of this now famous chart, which appeared originally in the September 1945 issue, compares the properties of the following commercial synthetic fibers:

VISCOSE ACETATE CUPRAMMONIUM NYLON VINYON FIBERGLAS ARALAC VINYLIDENE PLEXON SYNTHETIC RUBBER

Compared are: methods of manufacture, tensile strengths, tensile stresses, elongations at break, elastic recoveries, average stiffnesses, average toughnesses, regains or adsorptions, water absorbencies, specific gravities, dielectric strengths, effects of heat, effects of age, effects of sunlight, effects of acids, effects of alkalis, effects of other chemicals, effects of organic solvents, dyes used, resistances to moths, resistances to mildew, types and sizes produced, typical uses, producers and trade names, and typical stress-strain curves.

OTHER DATA INCLUDED

On the back of the chart is a TABLE OF COMMERCIAL SYNTHETIC YARNS AND FIBERS, giving the deniers and filament counts of all continuous-filament yarns, including tow, and the deniers and lengths of all staple fibers. Tensylon is included.

Also on the back is a discussion of new fibers not yet commercially available, including Rayolanda, soybean, zein, Ardil, keratin, albumen, polyvinyl-alcohol, alginate, gelatin, polyethylene, aluminum, etc.

Still another table shows the production of items made from rayon and the consumption of rayon, comparing in both cases 1945 with 1944.

Curves show the United States production of rayon from 1920 to 1945.

And, finally, another chart shows stress-strain curves plotted together to facilitate ready identification of various fibers.

HELPFUL AND CONVENIENT

Never before have so much data on synthetic fibers been compiled and published in this convenient form. In effect, a ready reference library on synthetics is assembled on just one sheet of paper measuring 29" by 20". A copy belongs on the wall or in the desk of every progressive textile man who is likely to be faced with the use of synthetic fibers or who has to answer questions concerning them.

Copies are available at 25 cents each—10 cents each in quantities of 50 or more.

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TW-12

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DIBUTYL PHTHALATE

a clear water-white liquid

Empirical Formula	$C_6H_4(COOC_4H_9)_2$
Molecular weight	278.34
Boiling point	340° C.
Ester value, 4 hrs. heating	99% minimum by weight
Odor	Substantially none

FOR THE TEXTILE INDUSTRY

Dibutyl Phthalate is widely used as a plasticizer in lacquers and resin coatings of fabrics. It is also employed as a spinning agent and as an ingredient of adhesives for cloth.

Other Barrett basic chemicals for the textile industry include:

BENZOL	TOLUOL
XYLOL	CRESOL U.S.P.
CRESYLIC ACID	CUMAR*
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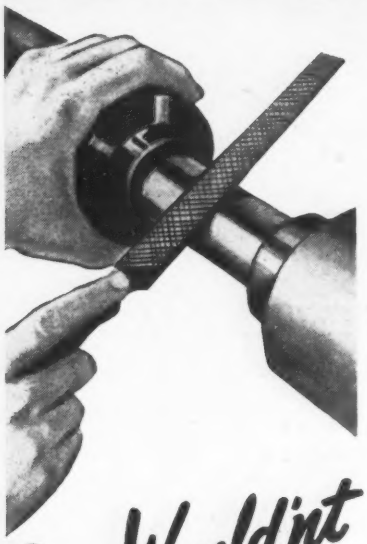


You Wouldn't

FILE YOUR TOP ROLL

In effect, that is what you are doing when you use saddles beyond their allowed time. Saddles become rutted or grooved, wear the neck of the roll, cause the top roll to revolve at a different speed than the bottom roll with resultant yarn imperfections. Further yarn imperfections are due to changes in weight ratios caused by wear.

For these and many more reasons with which most mill men are familiar, it is necessary to frequently replace even the best saddles.

When replacing your saddles, specify the best—Dixon Lubricating Saddles:

"It Costs So Little and Saves So Much"

Over 400 Different Types

DIXON LUBRICATING SADDLE CO.
Established 1876
BRISTOL, RHODE ISLAND, U. S. A.

Sole Manufacturers of
DIXON
LUBRICATING SADDLES

was first mentioned on page 96 of the December, 1945, issue of TEXTILE WORLD as possibly applicable to ramie decortication.

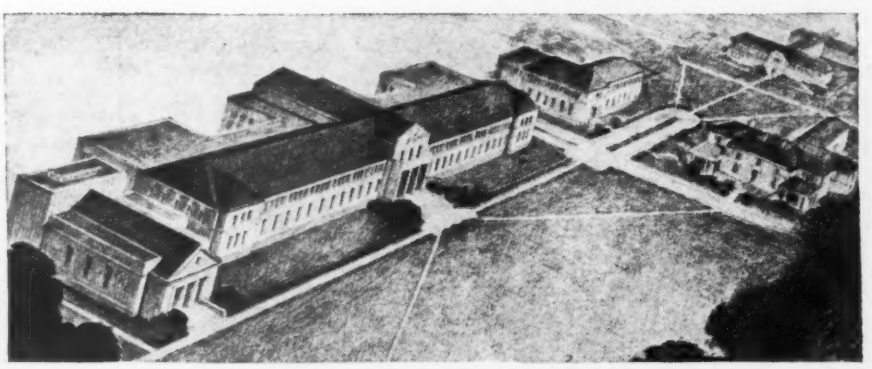
Rayon Production Increases. Third quarter rayon production, totaling 213,500,000 lb., has exceeded production of the corresponding period of 1945 by 10%, and sets a new record for the industry, according to the compilation made by the Textile Economics Bureau, Inc. Production for the first nine months of 1946, totaling 638,500,000 lb., also a new high, exceeds output in similar periods in 1945 and 1944 by 8½ and 19½% respectively. An annual output for 1946 nearing 900,000,000 lb. as indicated.

Fabric Show Taking Form. Mills specializing in fabrics for the men's apparel trades will be included among the exhibitors at the first International Exposition of Textiles, to be held at Grand Central Palace, New York, June 2 to 7, 1947. The 25,000 sq. ft. on the first floor has been rented to more than 80 organizations producing rayons, cottons, silks, and synthetic fabrics. Textile firms from foreign countries will display their wares on the fourth floor. Factory equipment for the clothing trades will be shown.

Wool for Germany. British and American zone officials have been discussing details of a joint wool program for Germany, somewhat similar to the cotton program already in effect. Basic agreement between the two countries was reached in late September at a meeting in the Laenderrat, Stuttgart, U. S. zone. As reported to TEXTILE WORLD, the agreement called for delivery by the British to German textile mills in the U. S. zone of 8,000 tons of wool, grease basis, equal to some 4,000 tons of wool scoured. It was estimated that this amount would keep the U. S.-zone mills going from three to six months, depending on what types of cloth were turned out and the amount of coal available for power. U. S. zone capacity for woolen and worsted output is estimated to require 12,000 to 15,000 tons of scoured wool annually. It has been tentatively decided that 25% of the manufactured goods would be exported to such countries as Holland, Belgium, Denmark, Sweden, and Finland, the remainder to be divided equally between the British and Americans. The export would be useful in building up Germany's foreign exchange, thus providing a means of paying for necessary imports of food and raw materials.

Secretariat Expands. The International Wool Secretariat is planning to add a technical service to its promotional activities in this country. Dr. Edgar H. Booth, chairman of the secretariat with headquarters in England, has been making a world tour, including the U. S. A. While here, he stressed the liaison with government and trade officials and the effectiveness of study groups on the subject of wool.

Urges Good Merchandising. Elmer Ward, president of Goodall Fabrics, Inc., spoke before a group meeting of the National Association of Wool Manufacturers in New York last month on the necessity for a permanent merchandising policy. He said that a product has a birth, a high point in its growth, and a demise and that industry must learn to control them. Actually the American economy needs products, he added, only up to its ability to sell those products.



PHILADELPHIA TEXTILE INSTITUTE's new buildings are shown in the architect's drawing recently offered to the trustees of the PTI Foundation for their consideration. The 12½-acre site for these buildings was recently acquired by the foundation at School House Lane and Henry Ave., Germantown, Pa. "The auditorium at the extreme left of the large building will seat over 500 persons," explained Col. Millard D. Brown, president of the foundation. "The chemistry and dyeing laboratories at the right of the main structure will provide ample space for one of the finest departments of its kind."

By her legs you will know her . . . the well-groomed girl of today She wears Dura Beau Reg. U. S. A. and Canada *finished hosiery for lasting beauty*

You'll never see a woman of fashion . . . *a woman who knows the art of good grooming* . . . wearing poorly finished hosiery. She wants, in fact demands, sheer hosiery that will carry her through active days. Hosiery that can be relied upon to resist strain and snags, repel water spots, hose which looks as lovely at the end of a day as at the beginning. Hosiery that can be washed over and over, retaining its quality and loveliness. *DuraBeau* finishes impart "the film of protection," and are *tailored to fit the fabric.*

Coat courtesy Dorothy R. Bullitt, Inc., Chestnut Hill and Ardmore, Pa.

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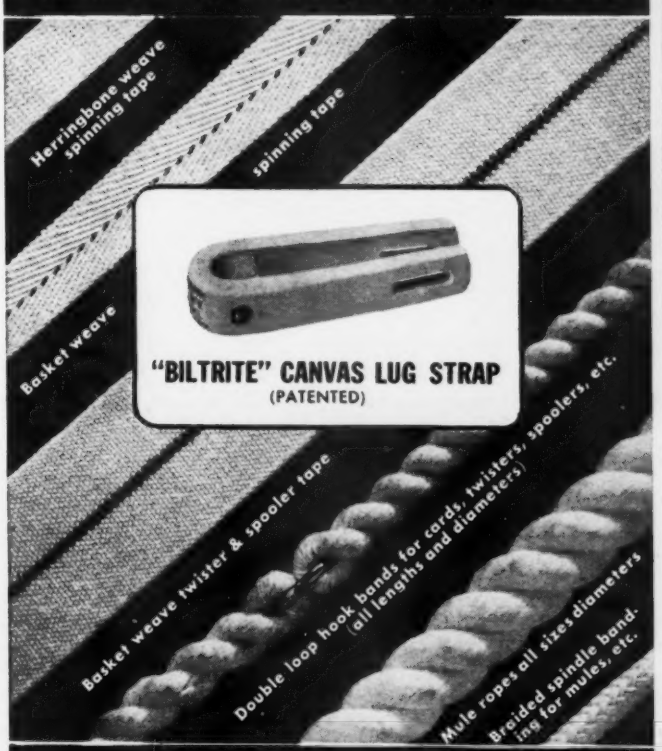
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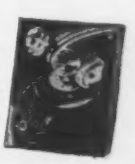

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We have developed over 200 of such applications for leading textile machinery manufacturers and mills.

Other textile applications include: stop motion devices, temperature, humidity and moisture controls, photoelectric scanners, etc.

You too may have one or several applications of mechanical electronics that will save you thousands of dollars in reduced labor cost and increased production.

We will make a complete survey of the opportunities for savings in your plant and render a written report or details of applications.

Write us today to be sure that we will be able to check up on your plant the next time we are in your neighborhood.

*Trademark Reg. Pending.

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Textile Committee of ILO Sets HIGH LABOR STANDARDS

HIGHLIGHTS: *First gathering of textile men representing government, employers, and workers from 17 countries meets at Brussels—Urges international acceptance of such policies as 40-hr. week, vacations with pay, full employment, improved mill conditions, improved hygiene and safety, retirement pensions.*

McGraw-Hill World News

THE TEXTILE INDUSTRIAL COMMITTEE of the International Labor Organization met for the first time in Brussels Nov. 14 for a ten-day session to discuss social problems of the textile industry during the transition period, and the future of international cooperation on social policy and its economic basis in the industry.

Seventeen of the 21 countries invited sent delegations, most of them comprising six members, two each for governments, employers, and workers. The three groups nominated their own chairmen as follows: governments, Myers (U. S.); employers, van der Kerken (Belgium); workers, Segier (Belgium).

One of the highlights of the opening plenary sessions, which met under the chairmanship of Radi Bey, government delegate from Egypt, was the statement of van der Kerken on behalf of the employers announcing their desire for a constructive action, but demanding maintenance of free enterprise in the industry with freedom of management to manage. The employers also stressed their opposition to nationalization and cartelization, and their insistence on conducting collective bargaining without threats of violence.

On Nov. 19, the meeting divided into two sub-committees: (1) on production and related questions, under the chairmanship of Vellodi (government, India), and (2) social security and welfare, chairman Hindahl (government, Norway). At the end of two days, they had produced the following draft resolutions and proposals for submission to the final plenary session of the conference:

Sub-committee I on production: recommended support for an international convention for the 40-hr. week in the textile industry; adopted a draft resolution submitted by the employers urging collaboration among governments, employers, and workers to increase world textile production to meet the urgent world demand; adopted a draft resolution on full employment; recommended studies on the principal social and economic problems of the industry; referred the question of minimum weekly wages to a special committee for final drafting.

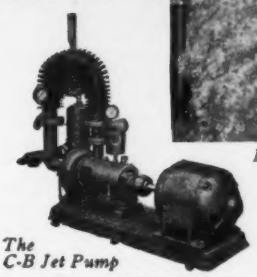
Sub-committee II on social security: adopted a draft resolution (which was a compromise) recommending minimum two-week paid holidays, with payment for other holidays based on collective agreements; adopted a draft resolution recommending establishment of factory committees to help supervise regulations on hygiene, health, and safety; proposed the establishment of mill canteens and nurseries; expressed the opinion that protection against risks of sickness, maternity, accident, and unemployment and the extension of old-age and retirement pensions, should be adopted by all countries.

The following countries have been represented: United States, Australia, Belgium, Canada, China, Denmark, Egypt, France, Britain, Italy, India, Mexico, Netherlands, Norway, Peru, Sweden, Switzerland. Invited, but not present, were Argentina, Brazil, Czechoslovakia, and Poland. Not being a member of the ILO, Russia of course was not present.

Composition of the United States delegation is as follows: Representing the government, Robert J. Myers, Manpower Division, Office of Military Government for Germany (U. S.); Assistant Commissioner Designate, Bureau of Labor Statistics, U. S. Department of Labor, Washington, D. C.; Rene Lutz, economic analyst, Leather & Textile Division, U. S. Department of Commerce, Washington, D. C. Representing employers: Edwin Wilkinson, assistant to the president, National Association of Wool Manufacturers, New York; Herbert H. Schell, president, Sidney Blumenthal & Co., Inc., New York. Representing the workers: Lloyd Klenert, secretary-treasurer, United Textile Workers of America, Washington, D. C.; John Vertente, Jr., executive council member, United Textile Workers of America, New Bedford, Mass.

40% More Footage with 25% Less Fuel

Hair Dryers at Denston consist of three separate coil-heated sections



The C-B Jet Pump

AT Denston Felt and Hair Co., Philadelphia, before installing the Cochrane C-B System, broad variations in temperature of the drying coils restricted feeding hair to the dryers to 5 lineal ft. per minute, and coarse hair had to be fed at the No. 3 slow speed to insure drying. • After the Cochrane C-B System of high pressure, high temperature condensate return was installed, *all* grades of hair now run at the No. 1 high speed and the feed rate is increased to 7 lineal ft. per minute. • Drying is thorough, no re-runs are necessary, temperature is constant, and condensate is returned to boilers at 310 deg. F instead of 210 deg. F. In addition, 25% is being saved in fuel costs—a *carload less coal every month.*

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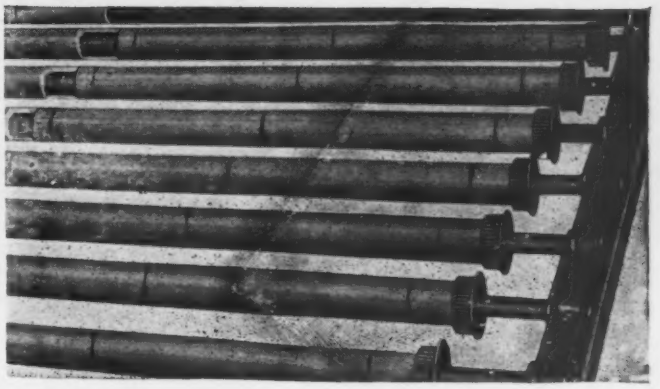
THE ACCEPTED STANDARD



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These patented poles are designed to automatically expand as they rotate intermittently, keeping the goods stretched out smoothly, from side-to-side, as they carry it forward through the machine in evenly spaced festoons. Bar marks and creases are eliminated, and the material is uniformly exposed to the drying medium throughout the entire run.

This is but one of many exclusive features of "NATIONAL" design and construction that contribute to *lower costs* through

Faster, More Uniform Drying

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Write for complete information on "NATIONAL" Automatic Piece Goods Dryers and other textile drying machinery and equipment . . . Straight Run and Return Type Tenter Drying Systems; Print Goods Dryers; Yarn, Skein and Stock Dryers.

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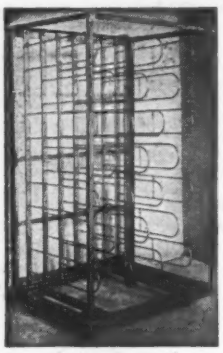

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Report Shows Importance Of Textiles To BRAZIL

HIGHLIGHTS: *Over 400,000 workers employed—Cotton-textile division accounts for 254,000 workers and operates 3,070,000 spindles and 97,061 looms—Exports of textiles from Brazil average $70,000,000 annually with cotton piece goods leading.*

SAO PAULO, BRAZIL—(*McGraw-Hill World News*)

THERE ARE NOW over 400,000 workers in the Brazilian textile industry, and the importance of textiles in the nation's economy is much greater than is generally understood, a recent report of the general secretary of the Spinners & Weavers' Industrial Syndicate disclosed. The report, submitted to the Economic & Social Investigation Committee of the Brazilian Constituent Assembly, indicated that in three years the national industry had exported 4,000,000,000 cruzeiros (about $220,000,000) worth of textiles.

"According to the latest figures available (see Table I), there were 411 cotton mills in 1944, giving employment to 254,000 operatives," the report said. "If we include the work-people in other textile industries—silk, rayon, wool, jute, and other fibers—we can say the total is 400,000. If we allot four persons per family, it can be affirmed that 1,600,000 Brazilians are directly dependent, on the textile industry. The importance of the textile industry in the country's economy is much greater than is generally understood. Any crisis tending to upset its structure must have adverse repercussions on banking, on tax collections, and thus on the Treasury, leading to a generalized social crisis."

"According to expert opinion, our mills need to be completely reorganized in the spinning departments," the report states, "to produce yarn of the strength required to work with automatic looms. . . . Those who sell to many markets must be equipped to produce small quantities of various types in accordance with the demands of small buyers. We must adapt ourselves progressively to the procedure adopted by the American industry, that is, we must mass-produce standardized goods and thus cheapen production."

TABLE II—Brazil's Textile Exports, 1943-1945

	Kilos	Cruzeiros*
Yarns for embroidery, crochet, tricot, sewing threads		
1943	311,857	15,719,829
1944	149,130	5,572,517
1945	195,828	7,248,171
Cotton Weaving Yarns		
1943	2,270,361	49,720,520
1944	3,460,673	107,102,692
1945	2,969,730	91,766,461
Cotton Piece Goods		
1943	26,045,818	1,096,681,000
1944	19,891,291	1,040,435,000
1945	23,541,979	1,377,601,000
Woolen Piece Goods		
1943	212,899	25,019,000
1944	67,341	9,053,000
1945	222,622	36,364,000
Silk Fabrics		
1943	18,302	4,899,000
1944	10,550	5,908,823
1945	30,821	28,061,900
Rayon Fabrics		
1943	83,393	14,291,000
1944	78,195	15,780,000
1945	181,971	34,504,000

* Quoted recently at about 5.48¢.

Table I—Brazil's Cotton Manufacturing Industry in 1944

	No. of mills	Work-people	Looms	Spindles
Sao Paulo	215	96,100	31,085	1,102,228
Fed. District	15	30,598	11,004	560,176
Minas Gerais	60	27,330	12,122	347,107
Rio de Janeiro	24	18,344	8,750	289,163
Pernambuco	14	29,795	11,265	202,958
Santa Catarina	21	6,470	1,423	41,490
Alagoas	9	11,018	3,232	111,132
Bahia	8	5,395	4,546	98,468
Rio Grande do Sul	3	1,011	603	24,172
Sergipe	12	8,279	3,247	101,898
Maranhao	8	3,867	2,128	80,820
Ceara	11	3,335	987	36,016
Parahyba do Norte	6	11,164	6,038	57,988
Elsewhere	5	1,304	631	17,158
Totals	411	254,000	97,061	3,070,794

GET MAXIMUM SAFE PRODUCTION FROM YOUR PLANT EQUIPMENT.. with a JONES TACHOMETER.

Control of speeds in textile operations is vitally important. With Jones Portable or Fixed Tachometers you can instantly and accurately measure speeds either in R.P.M.; feet or yards per minute, total output, or any desired indication.

By checking R.P.M. of motors, rollers, shafts, etc., they'll help you synchronize your plant equipment to more efficient and uniform production. Frequent routine observations of machinery speed will insure operation at a rate safe for your product, safe for your machine and safe for your profit on goods delivered.

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...Its Superior Qualities Make It Ideal for a Wide Range of Industrial Uses

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RED CYPRESS "The Wood Eternal"

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production time
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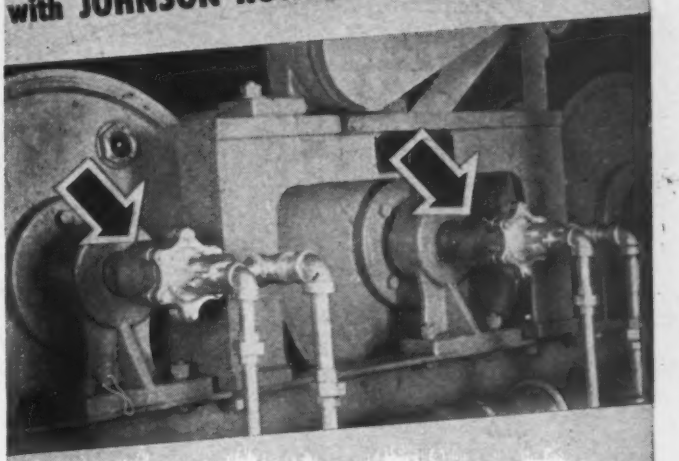
with JOHNSON ROTARY PRESSURE JOINTS

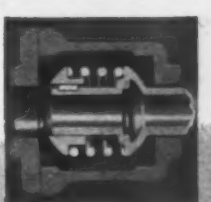


● Operating men everywhere have learned that the Johnson Joint is far more than just a better stuffing box or steam fit. It's an effective way to help solve many of your operating problems, this year and every year.

To begin with, the Johnson Joint steps up production. Its simple trouble-free design saves valuable time that is wasted when machines are shut down to repack or repair stuffing boxes. In addition, it provides a simple, neater way to install more efficient methods of syphon roll drainage.

While production goes up, maintenance costs come down. The Johnson Joint has no packing to wear out, needs no oiling or adjusting, and absorbs trouble-causing misalignment—both lateral and angular.

Reducing maintenance of course stretches your manpower—makes hard-to-get help available for more productive work. This is particularly important today. From every standpoint, you never had greater need for the Johnson Joint than you have *right now.*



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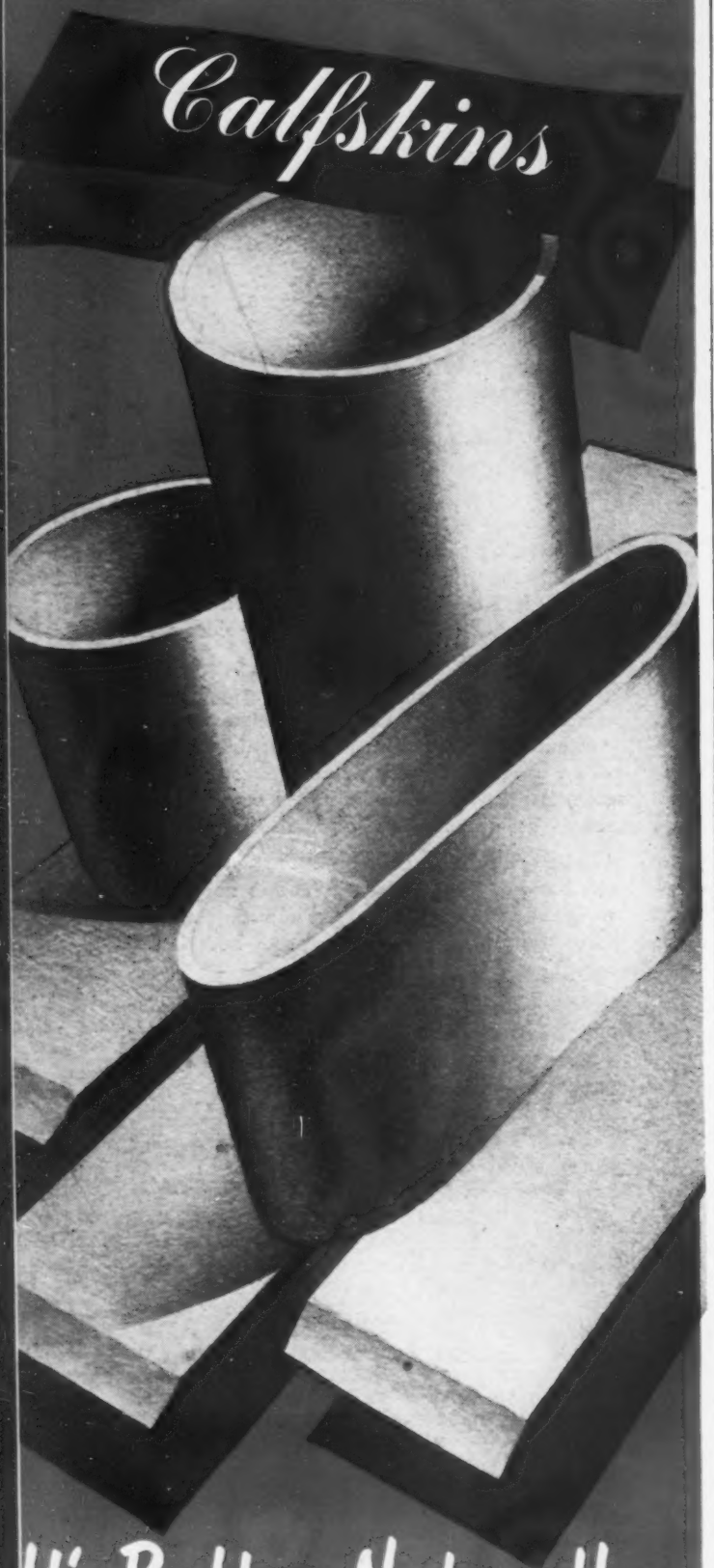

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A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Spinna Calf for roll coverings. Represented by H. H. Hersey, Greenville, S. C.

A. C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY MASS.

NEWS ABOUT Suppliers

American Paper Tube Co., Woonsocket, R. I., has opened a temporary Southern office in Greenville, S. C., mail address P. O. Box 2026. Dan M. Beattie, a native of Greenville, heads the office in his newly accepted position of Southern sales and service representative. Mr. Beattie has lately completed five years in the Marine Corps. He succeeds the late Jesse Hodges, who was located in Charlotte, N. C. American Paper Tube Co. has also taken a long-term lease on a building in Greenville, S. C. and will install $100,000 worth of machinery and equipment for manufacture of paper bobbins and quills to take care of the firm's Southern business. Conversion and initial operations will be under direction of Henry J. Feeley, chief engineer.

Arnold, Hoffman & Co., Inc., Providence, R. I., has appointed Enoch "Tod" Edwards as purchasing agent. Mr. Edwards recently returned after 3½ years in the army. J. B. Henriques, of the New York office, will continue as director of purchases.

Air-Perme-Ator Mfg. Co., Paterson, N. J., has appointed General Textile Machinery Co., Germantown, Philadelphia, Pa., as sole selling representatives of the company for the woolen-worsted industry of Western and Southern sections of the United States.

WALTER P. RUTLEY, who has joined Atkinson, Haserick & Co., Boston, in an engineering capacity. This company is the North American agent for foreign textile machinery firms, including Prince-Smith & Stells and the Societe Alsacienne de Constructions Mecanique. Mr. Rutley has resigned as president of the Kearny Mfg. Co., Kearny, N. J. He has been in the textile field for nearly 20 years, traveling not only in this country but Latin America as well.

CHEMICAL SHOW FOR PACIFIC COAST

The first regularly scheduled Pacific Chemical Exposition, featuring an industrial chemical conference and display for the western states and Pacific area, will be presented in the Civic Auditorium in San Francisco, Oct. 21 to 25, 1947, by the California Section of the American Chemical Society, which has headquarters in Hotel Witcomb, San Francisco. Chairman for the Exposition is Paul H. Williams of Shell Development Co., and the manager is Marcus W. Hinson, who has handled the National Chemical Exposition for the Chicago Section since 1940.

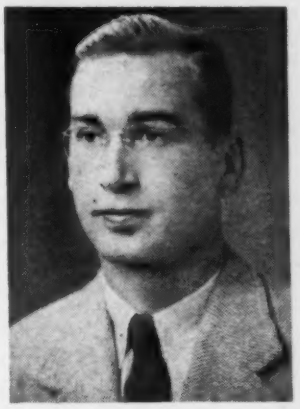
Morton Machine Works, Columbus, Ga., have made an exclusive agreement with Amer-Ind International, Inc., New York, for the sale of all Morton machinery to clients in countries throughout the world (excluding the U.S.A.). General Textile Machinery Co., Philadelphia, has been appointed Morton's representative in Northern and Western territories of the U. S.

General Electric Co., Chemical Dept., Pittsfield, Mass., has appointed John A. Buckley, formerly of G.E.'s Lamp Department at Nela Park, Cleveland, Ohio, as merchandise sales manager.

E. I. du Pont de Nemours & Co., Wilmington, Del., plans an addition unit at the Sabine

River Works, three miles west of Orange, Tex. The new unit is to make adipic acid, an important component in the manufacture of nylon.

Universal Winding Co., Providence, R. I., in its annual report for the 53d year of operation emphasizes a backlog of orders amount to approximately $10,500,000, compared with net sales for the fiscal year ended June 30, 1946 of $5,261,408.



C. S. SMART, JR., who recently succeeded Phil Worth as Greenville, S. C., manager for Saco-Lowell Shops, as previously reported in these columns.

Bryant Chemical Corp., North Quincy, Mass., has added to its sales and technical staff Robert Blower, formerly associated with William Skinner & Sons, of Holyoke, and before that with the Lorraine Mfg. Co. Mr. Blower will be located in the Philadelphia territory.

A. C. Lawrence Leather Co., Peabody, Mass., has recently had a comprehensive display of its products at Boston's South Station, placed there through the cooperation of the New England Council in promoting New England industries.

D. J. Murray Mfg. Co., Wausau, Wis., has appointed O. J. Malina as sales manager of its heating and ventilating division. His office is at 43 East Ohio St., Chicago, Ill.

Eriez Mfg. Co., Erie, Pa., has been given exclusive sales and distribution rights by Radio Corp. of America for the latter's electronic metal-detector in the New England states, New York, New Jersey, Delaware, Maryland, and most of Pennsylvania.

Plexon International, New York, has appointed Coronet Textiles, Ltd., Montreal, as Canadian distributor of Plexon yarns.

Ultra Chemical Works, Inc., is enlarging its Paterson, N. J., plant in accordance with a long-range program of expansion and modernization. A feature of the newly-completed Detergents Division building is a six-stories-high spray dryer.

Dings Magnetic Separator Co., Milwaukee, has moved into a new plant in Milwaukee's southwestern industrial district, consolidating its manufacturing activities which were previously carried on in two Milwaukee plants. Considerably enlarged research and analysis laboratories will be available.

American Viscose Corp., New York, has consolidated its former advertising and publicity departments into a public-relations department, headed by Charles W. Rice, former advertising manager.

Sylvania Electric Products, Inc., Salem, Mass., has named F. R. Archer as merchandising supervisor of fluorescent products.

Arthur D. Little, Inc., Cambridge, Mass., is celebrating its sixtieth anniversary. The laboratories were founded as the firm of Griffin & Little in a small office in downtown Bos-

HENRI M. MARC, who has been made assistant general manager of the C. J. Tagliabue Division, of Portable Products Corp., Brooklyn, N. Y., comes to Tagliabue from Philip Carey Mfg. Co., Cincinnati, with which he had been associated since 1932 as assistant director of research, developing asbestos, mineral wool, and other heat and sound insulating products.

TOP NAME IN ROLL COVERINGS

LAWRENCE

Spinna Calf

It's Better Naturally

THAT'S WHY EVERY YEAR MORE PEOPLE DECIDE LEATHER IS BEST

A. C. Lawrence Leather Company, Peabody, Mass. Manufacturers of Lawrence Calfskins—1st choice for aprons. Represented by H. H. Horsey, Greenville, S. C.

A. C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY MASS.

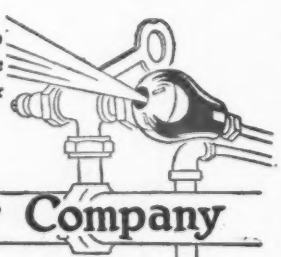
Parks Turbomatic Atomizer

AUTOMATIC - SELF CLEANING

IT "LEAKS" in just one place; leaks where it is supposed to; where atomizing is being done, where its vapor is being made. Can't and doesn't leak anywhere else.

Atomizers that leak in places not easily found; places one wouldn't be looking for, fritter away compressed air. They are expensive. The TURBOMATIC (the atomizer with the diaphragm) is efficient. Stays so.

No piping changes. The self-cleaning Turbomatic interchangeable with earlier and other models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

ton in 1886; the present staff of 175 now occupies a group of substantial buildings in Cambridge. The firm's industrial research has been extended to cover practically all fields of applied science.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has transferred Albert R. Knauss, formerly of the Tulsa district office, to be manager of the firm's office at Memphis, Tenn. Allis-Chalmers has promoted Charles F. Codrington from assistant-to-the-manager to sales manager of the blower and compressor department succeeding A. E. Caudle, resigned.

Monsanto Chemical Co.'s Plastics Division, Springfield, Mass., has assigned sales of thermosetting molding materials in Northern New England to J. Douglass Kirk, while Winston Richter, who formerly handled both thermosetting and thermoplastic materials, will devote his efforts entirely to the sale of thermoplastic materials. In Southern New England, the sale of thermoplastic materials has been assigned to William H. Face, and thermosetting materials to T. J. Martin. The latter formerly handled both types of plastic sales. E. L. Hobson has been appointed assistant branch manager of the New York office.

Monsanto Chemical Co., St. Louis, has received government approval for an estimated $4,000,000 expansion of its Monsanto, Ill., plant facilities, which involve about $3,500,000 for new chemical machinery and about $500,000 in building expenses. The expansion, to be substantially completed by the end of 1947, will bring greater production of synthetic detergents, wood preservatives, chlorines, etc. Monsanto has opened a sales office in the Keith Building, Cleveland. Robert H. Baugh will supervise the office and represent the phosphate division sales. T. C. Tupper will represent the organic chemicals division, and R. T. Clark the Merrimac division. Monsanto has appointed Robert H. Baugh as assistant branch manager of its Detroit sales district for the phosphate division.

York Corp., York, Pa., has appointed Edwin P. Vanderwicken as secretary and treasurer. Mr. Vanderwicken was formerly assistant-to-the-president of Signode Steel Strapping Co., Chicago, and treasurer of Signode International Ltd., and its subsidiaries.

CLAUD M. HENDRIX, who has been appointed by New York & New Jersey Lubricant Co. to its sales engineering department with headquarters at Atlanta, Ga., has been for 15 years with Gossett Mills, Anderson, S. C. and five years with Calhoun Mills, Calhoun Falls, S. C. With the latter mill, he served in the capacity of assistant superintendent.

Link-Belt Co., Chicago, Ill., has elected George P. Torrence as president. He was previously executive vice president and succeeds William C. Carter. Mr. Torrence, in addition to his experience with Link-Belt Co., which dates back to 1911, was general manager of Rayon Machinery Corp., a subsidiary of Industrial Rayon Corp., from 1936 to 1944; and president of Cleveland Pneumatic Tool Co., from 1944 to 1946.

The Flintkote Co., New York, N. Y., has appointed Dr. Warren L. McCabe, currently head of the Chemical Engineering Department, Carnegie Institute of Technology, Pittsburgh, Pa., to become director of research effective Feb. 1, 1947. Dr. McCabe will succeed Dr. John J. Stanko who has been serving as acting head of the research department.

Farrel-Birmingham Co., Inc., Ansonia, Conn., and Buffalo, N. Y., has reopened its branch office in Chicago, at 120 South La Salle St. The office is in charge of Harry Temporal, who has been connected with the company for 26 years.

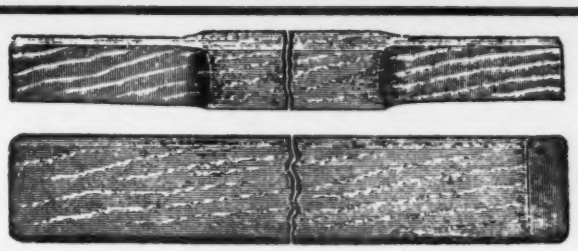
H. K. Porter Co., Inc., Pittsburgh, is moving its two Quimby Pump manufacturing operations in New Jersey to be consolidated with the company's plant at 49th & Harrison

WHEN IS ONE MULE 13 TIMES Better?

WHEN IT'S A JOHNSON AND BASSETT MULE, WHICH HAS 13 ADVANTAGES OVER RING SPINNING FRAMES AS FOLLOWS: **1.** Up to 50% saving in labor. **2.** Up to 65% saving in H.P. per equal number of spindles. **3.** Up to 50% saving in floor space per equal number of spindles. **4.** Up to 67% saving in investment per comparable capacity. **5.** The J & B Mule will handle a much coarser roving than a frame, thereby increasing production at the card by 15% to 20%. **6.** The J & B Mule produces a true woolen yarn — superior in strength, elasticity, loftiness, roundness and uniformity of size and twist to that produced by frame spinning. **7.** It permits inspection of the thread. **8.** It will successfully spin short staple roving which will not hold together on a frame. **9.** Spindle for spindle, it will produce as much yarn as a frame. **10.** Its cost of upkeep is exceptionally low. **11.** The J & B filling package does not require rewinding for an automatic loom. **12.** Changes for spinning different types of yarn on the J & B Mule are easily and quickly made. **13.** Mule bobbins cost less than frame bobbins.

Complete details and prices on request.

JOHNSON & BASSETT, INC.
Founded 1865
WORCESTER, MASSACHUSETTS, U. S. A.



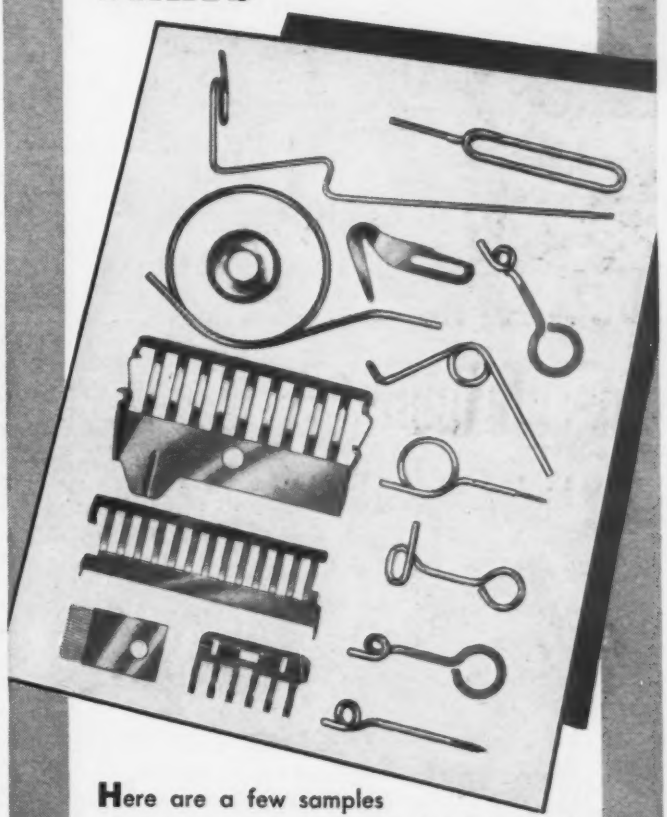
A
DYE STICKS

Since 1900 we have made high quality true-form oven-seasoned dye sticks for all standard machines. We can fill your needs today to meet any requirements. Write

FRANK BAILEY Cedar Brook, N. J.

Walhard

CHROMIUM PLATED TEXTILE MACHINE PARTS



Here are a few samples of the thousands of Textile Machine parts that are LASTING LONGER, RESISTING CORROSION and PERFORMING BETTER because of chromium plating by WALHARD.

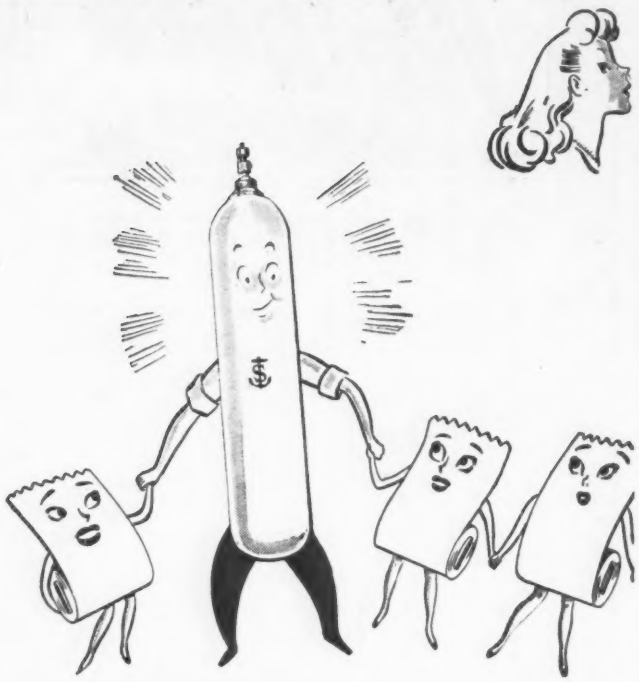
Send WALHARD your sample part for test plating, or ask to see a trained WALHARD sales-engineer.

• • •

Write for your copy of the new illustrated WALHARD booklet — no obligation.

WALTON AND LONSBURY
78 NORTH AVENUE
ATTLEBORO
MASSACHUSETTS

NOT recommended for blondes . . .



but perfect for bleaching textiles

SOLVAY LIQUID CHLORINE

OF COURSE THE BUYING public doesn't know. For instance, they think cotton fields look white as the driven snow. Shows what you can do when you use SOLVAY Liquid Chlorine as your perfect bleaching agent!

SOLVAY LIQUID CHLORINE PERFECTLY performs all bleaching operations. In the first place it safeguards against spotty bleaching and uneven colors. As a water conditioner, it controls the quality of the water. Add this to its versatility, its low cost, its controlled quality, its highest standards of purity and its dependable performance and you will see why leading textile houses depend on SOLVAY Liquid Chlorine to solve all bleaching problems perfectly.

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Alkalies and Chemical Products Manufactured by The Solvay Process Company

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BRANCH SALES OFFICES:

Boston • Charlotte • Chicago • Cincinnati • Cleveland • Detroit • Houston
New Orleans • New York • Philadelphia • Pittsburgh • St. Louis • Syracuse

Sts. in the Lawrenceville section of Pittsburgh.

Stowe - Woodward, Inc., Newton Upper Falls, Mass., has elected William E. Greene as chairman of the board. Fletcher P. Thornton and Oliver P. Arnold were elected vice presidents.

Fabric Laundry & Dry Cleaning Machinery Corp., Brooklyn, N. Y., has recently completed motion picture films to be shown to dry cleaning and laundry plant owners.

Lincoln Electric Co., Cleveland, Ohio, has appointed Marvin Anderson, as sales engineer at its Moline, Ill., office. Other similar appointments follow: Albert Bavaria at Philadelphia, Richard Freundlich at Cleveland, Paul Holden at Franklin, Pa., Richard K. Reynolds at Detroit, Richard Nelson at Syracuse, John E. Williams at Syracuse, N. Y.

Goodyear Tire & Rubber Co., Akron, Ohio, has appointed Dr. L. B. Sebrell as director of research and chemical products development. Goodyear has appointed Charles O. Roome as manager of the St. Louis district of its Mechanical Goods Division. John E. Ragan, manager of the St. Louis district since 1935, has transferred to Atlanta as district manager of mechanical goods sales. At Charlotte, N. C., Carl Baker becomes field representative.

HENRY A. THOURON who has been appointed assistant to the director of sales of the Synthetics Department of Hercules Powder Co., Wilmington, Del. He will aid in coordinating the expanding work of the district sales offices with the central sales offices at Wilmington.

Fischer & Porter Co., Hatboro, Pa., manufacturers of variable-area type of flow-rate instruments, generally called rotameters, has recently announced its intention to trademark its products as "Flowrators."

The Girdler Corp., Louisville, Ky., Votator Division, has appointed Allen McKee Bond, Jr., as sales manager of Votator's fats and oils section.

General Electric Co., Schenectady, N. Y., has purchased Mahoning Valley Steel Co., Niles, Ohio, a hand steel mill for the manufacture of hot-rolled sheets. John P. Hosack, who has been vice president and treasurer of the steel company, has been named president and treasurer of the new G.E. affiliate.

Hydraulic Press Mfg. Co., Mt. Gilead, Ohio, has appointed H. J. Leisenheimer as director of export sales.

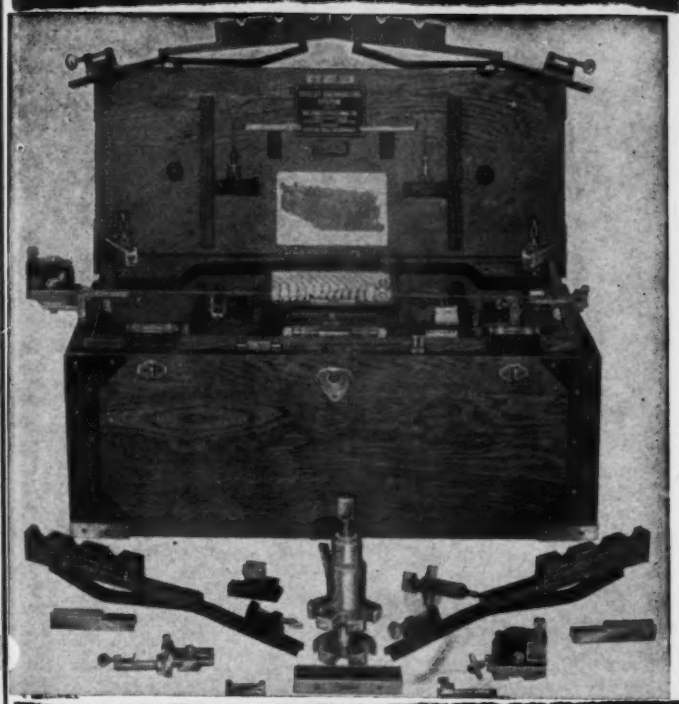
Hall Laboratories, Pittsburgh, has transferred J. Mylan Harvey from its Pittsburgh to its Cleveland field-service staff.

National Merchandisers, Chicago, Ill., is offering a marketing service for new inventions to help the small or average inventor from the beginning or birth of his idea until the invention has been developed for manufacturing operations, or is on the market as a finished device or article.

NEW MATERIALS-HANDLING SOCIETY ORGANIZED

A group of specialists in materials-handling has voted to form an organization covering Eastern Pennsylvania, New Jersey, Delaware, and Maryland. A set of principles or objectives tentatively proposed for the new society includes: (a) to further the application of sound materials-handling procedure; (b) to encourage the interchange of ideas among its members; (c) to promote education and training in the science and application of co-ordinated materials handling; (d) to arrange for the collection and dissemination of knowledge and information relating to all phases of the art. Temporary chairman is Jas. B. McGinn, of American Viscose Corp., and temporary secretary is Chas. F. Gross, of Philco Corp.

"THE MODERN TREASURE CHEST"



Save TIME MONEY MACHINERY

with

GUILLET'S OVERHAULING SYSTEM FOR LINING, LEVELING AND CONDITIONING FRAMES.

Guillet's system pays for itself in FOUR DIRECT SAVINGS

- V **Unnecessary Wear**
- V **Less Power Consumption**
- V **Fewer Expensive Breakdowns**
- V **Better Quality of Yarn**

The system is flexible and is designed to meet the several different requirements of any Cotton, Silk or Worsted Mill

Weekly rental or outright sale. *Free demonstration on request.*

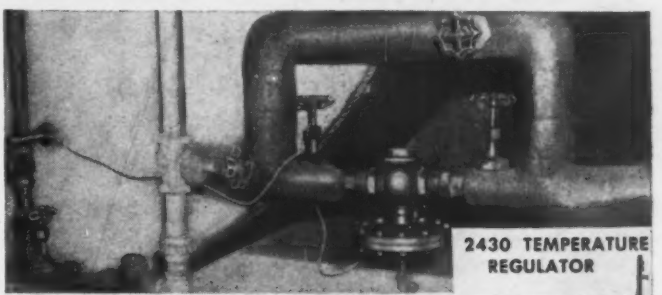
MANUFACTURER

DIXIE SPINDLE & FLYER COMPANY, Inc.

CHARLOTTE — ALBERT M. GUILLET, PRES. — NORTH CAROLINA

NEW ZEPHYR "HYDRAXTOR"

the Extractor of the Future



2430 TEMPERATURE REGULATOR

MAKING OIL RUN AT ZERO TEMPERATURES

Outdoor blending tanks lead directly to processing rooms in this Pittsburgh plant which makes highly special lubricating greases. "Temperature is one thing we have never worried about since we began installing Sarco 2430 Regulators two years ago," says the Mechanical Superintendent. It's another case where too much heat would ruin the product —too little would shut down the plant.

The 2430 used extensively for hot water and process tanks is only one of the many Sarco Temperature Controls. Catalogs on the types needed for your specific problems will be sent on request.

SARCO SAVES STEAM

SARCO COMPANY, INC.
475 Fifth Avenue, New York 17, N. Y.
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America's Biggest Names

In Textiles

Wherever textiles are bought in volume, the name WHITMAN is well known. Known for long experience . . . for modern ideas . . . for keen styling . . . for sound merchandising methods.

Mills represented by the WHITMAN Company enjoy:

- Association with some of the best mill names in the industry.
- The services of a young, yet experienced sales force well established in the most desirable markets.
- Cooperation on merchandise planning, styling, distribution and, when desired, on problems of taxation and general management.

Inquiries are invited from non-conflicting accounts.

ARLINGTON MILLS *Lawrence, Mass.*

MONOMAC SPINNING CO. *Lawrence, Mass.*

NONQUITT MILLS *New Bedford, Mass.*

NASHAWENA MILLS *New Bedford, Mass.*

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General Offices: 261 Fifth Avenue, New York 16, N. Y.

Cotton and Rayon Fabrics Division: 40 Worth Street, New York 13, N.Y.

BOSTON 78 Chauncy Street · CHARLOTTE Commercial Bank Building · PHILADELPHIA 1600 Arch Street · LOS ANGELES 810 South Spring Street

NEWS ABOUT Mills

Cotton Mill News

Abbeville Cotton Mills, Abbeville, S. C., will, according to reports, install $500,000 worth of equipment in a $200,000, four-story addition. The mill now produces woolens and synthetics in a gradual change-over from cotton.

Anchor Thread Co., Groveville, N. J., is arranging for the purchase of property in Lawrence Township near Trenton, N. J., as a site for a new mill.

Bath Mills, Bath, S. C., has under way a $2,600,000 modernization and replacement program which includes the construction of a new weave shed, a two-story addition, a new dye house, and a new waste house. Also planned is the consolidation of two weave rooms which have been in separate areas.

Blue Ridge Yarn Mills, Pendleton, S. C., has been chartered with authorized capital of $50,000 and has purchased the Gossett Mills plant in Pendleton, S. C., from Textron Southern, Inc. Officers are T. Frank Watkins, president; William L. Watkins, vice president and treasurer; and John C. Watkins, secretary.

Brewton Rug & Textile Corp., Brewton, Ala., is installing machinery, including six broad and eleven narrow looms, twisting frames, winders, spoolers, reeling equipment, and beaming frames. The plant will employ only negro labor and is expected to go into operation by Jan. 1. Harold Getts is president and William Erkes is resident manager.

Clearwater Mfg. Co., Old Fort, N. C., plans a new power plant which will cost about $117,000. Approval has already been secured from CPA.

Charm Tred Mills, Inc., Monticello, Ark., formally opened its new rug plant in Monticello on Nov. 1. This company recently purchased Monticello Cotton Mills.

Davidson Cotton Mills Corp., Davidson, N. C., which recently changed ownership, will include in its improvement program the construction of a weaving mill.

John P. King Mfg. Co., Augusta, Ga., has been granted CPA approval for the construction of a $63,000 connecting wing and a $33,250 boiler house addition.

Lincoln Spinning Co., Pawtucket, R. I., has received CPA approval for construction of a $108,000 building which will house imported textile machinery.

Marshall Field & Co. Manufacturing Div., Spray, N. C., is reported to have established a chenille-type bedspread plant in one of its mills.

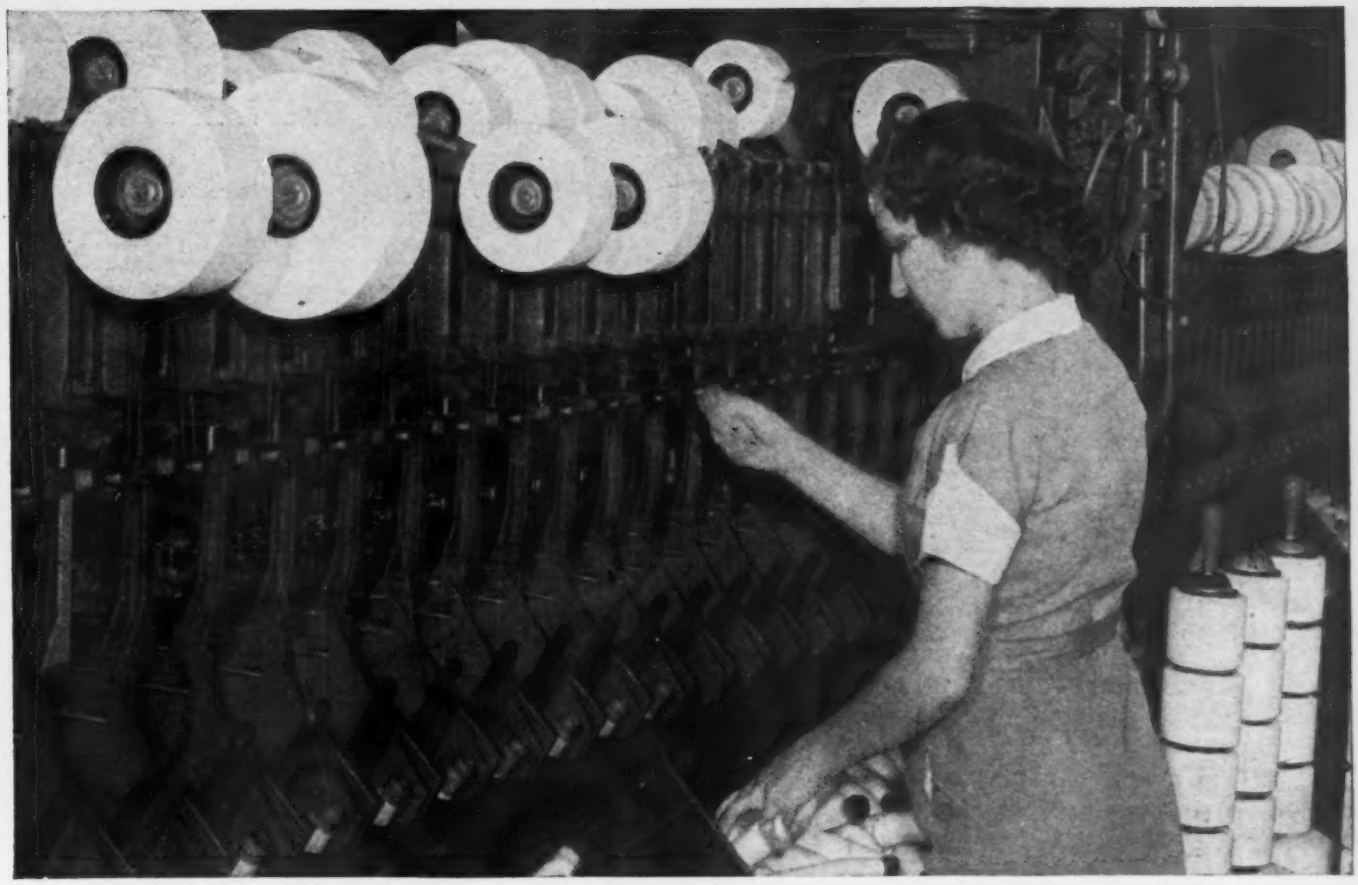
Model Processing Co., Inc., High Point, N. C., is now in operation producing combination yarns on 784 spindles. The company is capitalized at $100,000. I. L. McDowell is president and general manager.

Oconee Mills, Inc., Westminster, S. C., is erecting an addition with materials obtained from dismantled textile buildings. The addition will provide 75,000 sq. ft. of floor space, an increase of 30% over present area, and will require 200 employees.

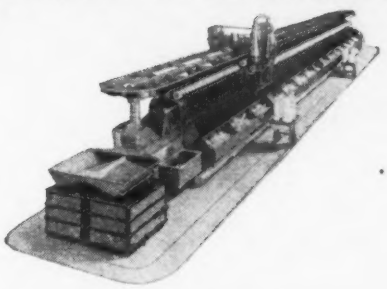
Rockfish Mills, Mount Hope, N. C.—Controlling interest in this company was recently acquired by E. N. Bower, formerly secretary-treasurer, who has succeeded I. W. Rose as president. The mill's operations will be integrated with those of Dixie Mercerizing Co., Chattanooga, Tenn.

Riegel Textile Corp. is constructing an addition and will add $800,000 worth of new equipment at its mill in Ware Shoals, S. C.

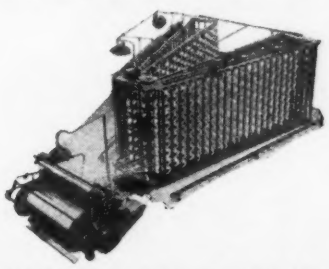
Salisbury Cotton Mills, Salisbury, N. C., is adding roving machinery which will cost $75,000.



MOST AMERICAN COTTON MILLS HAVE ADOPTED THE BARBER-COLMAN SYSTEM OF SPOOLING AND WARPING



AUTOMATIC SPOOLER



SUPER-SPEED WARPER

About twenty-five years ago the first Barber-Colman Spoolers and Warpers were installed in a prominent American mill. These new machines aroused immediate interest among mill executives all over the country, because they offered advantages of economy and operation not previously attainable. Not only was the yarn handled at far greater speeds than before, but its condition was maintained to a much higher degree. Savings were achieved and production improved in the succeeding processes . . . slashing and weaving . . . as well as in the spooling and warping. Each mill that considers Barber-Colman equipment receives a detailed Proposal, based on a careful analysis of the mill's own requirements, which shows accurately how much money the machines will save and how soon they will pay back the investment in them. Through the years improvements have been introduced to increase the efficiency and performance of the equipment. All these distinctive features have gained for the Barber-Colman System of Spooling and Warping outstanding recognition . . . to the end that practically all American cotton mills have "standardized" on Barber-Colman equipment.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

BE WISE
ECONOMIZE

DESIZE WITH EXSIZE

WHATEVER your own particular finishing problem, scientific tests will show that EXSIZE... our natural enzyme desizer will do the best and most economical job for you.

So why not use our laboratories for your tests or let a Pabst Technical Man work with you in your own mill? You'll soon prove to your own satisfaction the many advantages of employing this safe, easy to use desizing agent. Containing no harsh chemicals, EXSIZE leaves materials supple, elastic, soft... turns out clean, absorbent fabrics. And hundreds of yards of cotton or cotton-mixed cloth can be desized with EXSIZE for only a few pennies.

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PABST BREWERIES

Copr. 1946, Pabst Brewing Company, Milwaukee, Wisconsin.

PABST SALES COMPANY
CHICAGO, ILLINOIS
Warehouses at Jersey City, and Textile Warehouse Company, Greenville, S. C.

Springs Cotton Mills, Lancaster, S. C., will begin construction immediately of a power plant and has been authorized by CPA to purchase $248,706 worth of necessary materials. This project is part of a $7,000,000 finishing plant.

Tape-Craft, Inc., Anniston, Ala., has been organized to manufacture zipper tape, carpet binding, and mattress binding. The company occupies a building having 12,750 sq. ft. of floor space and has installed six looms, with six soon to come. Later on eight more looms will be added and a dyeing and finishing plant will be set up. Eudy Kemp, formerly with Classe Ribbon Works, Anniston, is president.

Utica & Mohawk Cotton Mills, Inc., has begun construction of a four-story addition to its plant in Seneca, S. C., as part of a $1,500,000 expansion program. The addition will house 35,000 spindles.

West Point Mfg. Co., West Point, Ga., has purchased part of the capital stock of Cabin Crafts, Inc., one of the country's largest producers of tufted textile products, with plants in Dalton, Ga., and Cleveland, Tenn.

White-Tex Mills, Inc., Rackford, N. C., is the new name of the former Edinburg Cotton Mills, now under new ownership. Troy Whitehead is president and treasurer. Marvin T. Poovey continues as superintendent.

Whitley Spinning Co., Clayton, N. C., will be operated as Clayton Spinning Co. L. P. Miller, Philadelphia, Pa., recently purchased the interest of Phillip R. Whitley. D. R. LaFar, Jr., Gastonia, N. C., is president of the company.

Wool Mill News

American Woolen Co. will install two 600-kilowatt steam turbines, which will be connected to electric generators, and two 500 hp. steam boilers, to replace five old boilers, in a new engine room and powerplant to be constructed at its Sawyer mill in Dover, N. H. Cost will be about $100,000.

Blue Bonnet Blanket Mills, San Marcos, Tex., will have its present production of 2,500 blankets per week tripled when its new machinery is installed and operating.

Conestee Mill, Conestee, S. C., is installing machinery and has some production under way while modernization and repairs are being completed. Equipment is being moved from the Norad Division of Blackinton Mills Corp., Blackinton, Mass. Frederick Surr is superintendent of the plant.

Deering, Milliken & Co., Inc., will begin operations within 60 days in two newly-constructed plants at Johnston and McCormick, S. C., which cost $3,115,000 and are equipped to manufacture worsted yarns and fabrics on the cotton system. This is part of a $10,000,000 expansion program. One of the plants will be a 125,000 sq. ft. spinning unit equipped with 20,000 spindles, and the other will be a 90,000 sq. ft. weaving unit with 144 box looms.

Dominion Woolens & Worsteds, Ltd., Hespler, Ont., will erect a plant on a five-acre site in Owen Sound, Ont.

Great Western Garnetting Co., Inc., has established a plant in Aurora, Ill. equipped with six garnetts and complementary equipment. Charles and Milton Goodman are principal stockholders.

J. A. Humphrey Woolen Mills, Humphrey, N. B., has been sold to Richard Thompson, Jr., Toronto, Ont., who was formerly manager of Renfrew Woolen Mills, Renfrew, Ont.

Matson Mills, Inc., Glastonbury, Conn., has appealed to the Superior Court a decision of the Connecticut State Water Commission, which ordered the company to install equipment for chemical treatment of waste and septic tanks for treatment of sewage, with completion set for May 15, 1947.

North Star Woolen Mill Co., Minneapolis, Minn., will take over on Jan. 4, 1947 the operation of Wakefield Woolen Co., Wakefield, R. I., which it recently purchased. This adds 40% to the production capacity of North Star. Plans are already under way to expand the newly acquired plant. The number of looms will be increased to 40, and new dyeing and finishing equipment will be added.

UNITED

YARN PRODUCTS COMPANY

1450 BROADWAY · NEW YORK 18, N. Y.
285 STRAIGHT STREET · PATERSON, N. J.

The rings you need to "take" more speed!

Mill men often refer to these Eadie styles as "speed rings". After installing these rings, they have speeded up their machinery, sometimes to figures that sound fantastic — and the rings can take it! Silk and rayon twisting . . wool spinning . . worsted spinning and twisting . . tie cord twisting . . are typical operations where speed rings are used.

WHITINSVILLE (MASS.)

SPINNING DIAMOND FINISH **RING CO.**

Makers of Spinning and Twister Rings since 1873

DANA WARP MILLS

Westbrook, Maine

Cotton yarns, single and ply
Cotton warps, single and ply
Colored yarns and warps
Spun rayon—yarns and warps
Seamless grain bags.

The ALDON SPINNING MILLS *Corp.*

TALCOTTVILLE, CONN.

Spinners of Fine Woolen, Merino & Specialty Yarns

N. Y. Office
11 West 42nd Street

Chicago, Ill.
C. M. Patterson

THE OLDEST AND LARGEST
MANUFACTURERS OF
Ring Spinning and Twister Travelers

In the UNITED STATES

American • Hicks • Wilson
United States Standard
Wentworth Double Duty
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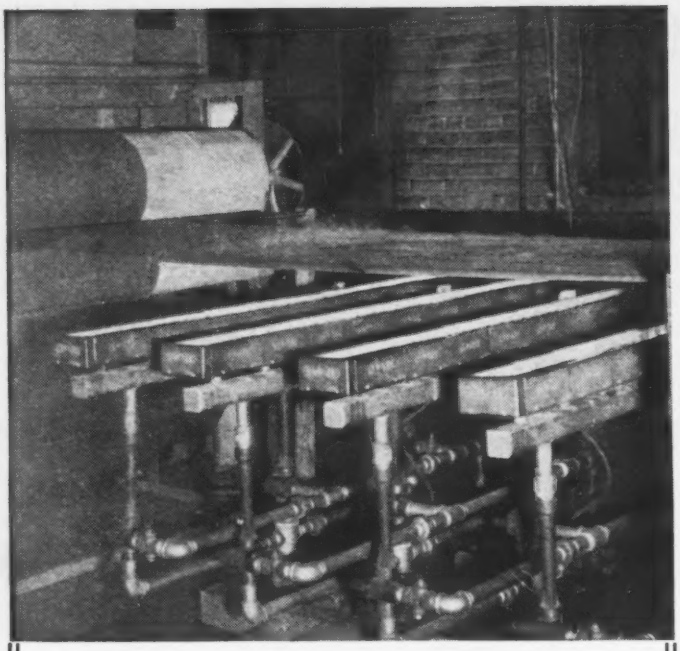

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HUYCK SANFORIZER and Palmer Blankets are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the coarsest denim, there is a special Huyck blanket to meet your specific needs.

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F. C. HUYCK & SONS
KENWOOD MILLS
Albany, New York

Pioneer Valley Textile Co. recently leased mill space in Gilbertville, Mass., and will begin the manufacture of worsteds and worsted-rayon blends about the first of the year. Spinning will be done at the Gilbertville plant, but not finishing. Herbert H. Ward, formerly overseer at Gilbert Co., will be in charge of operations.

Royal Duluth Mills Co., Duluth, Minn., is now in full production. Officers of the company are: Royal D. Alworth, president; Robert Merrill, vice president and sales manager; M. A. Alworth, II, vice president, treasurer, and general manager; and John D. Brumbeck, superintendent.

Warwick Woolen Mills, Ltd., Warwick, Que., has let contract to Pondrier & Boulet, Ltd., Quebec City, Que., for a new one-story mill, which will cost close to $180,000.

Rayon & Silk Mills

American Enka Corp., Enka, N. C., is reported to be planning the location of a new rayon yarn plant in Lowland, Ga.

American Viscose Corp. expects to finish construction of its new plant in Radford, Va., sometime early in 1948.

Belding - Heminway - Corticelli expects to have its Morristown, Tenn., plant completed by Mar. 1.

Blackstone Weaving Co., Blackstone, Va., is adding 100 looms and five automatic quillers to its production equipment for rayon taffeta.

Boljamas Weaving Co., Gadsden, Ala., will shortly begin manufacture of drapery and upholstery fabrics. J. M. James is superintendent.

Burlington Mills Corp., Bluefield, W. Va., has leased the building recently vacated by Virginia Esmond Blanket Co. and will renovate and equip it for the manufacture of rayon ribbon. This plant and another Burlington ribbon mill in White Sulphur Springs, W. Va. will be known as White Sulphur Springs Industries.

Celanese Corp. of America, Cumberland, Md., will spend about $6,800,000 for construction of ten buildings at Rock Hill, S. C., and the balance of the $39,000,000, for expenditure of which CPA has granted approval, will be spent for machinery and equipment. Construction will be completed in from 18 to 24 months.

Courtaulds, Ltd., is expected soon to proceed with its plans to build a $20,000,000 rayon-yarn plant on a 500-acre site near Newcastle, New South Wales, Australia.

E. I. du Pont de Nemours & Co., Wilmington, Del., planned to start construction about Nov. 1 on its new $20,000,000 nylon yarn plant in Chattanooga, Tenn. The main building will be 748x324 ft., mostly one story with a three-story section at one end. The new nylon unit at Martinsville, Va., is almost completed.

Duplan Corp., New York, N. Y., has acquired controlling interest in the common stocks of both M. E. Binz Co., Ltd., Montreal, Que., and Valley Dyeing & Finishing Co., Ltd., Valleyfield, Que., in exchange for common stock of Duplan Corp. M. E. Binz Co. operates weaving mills with 500 looms at Montmagny, near Quebec. It also has its own rayon-spinning plant and sufficient dyeing and printing capacity to process all of its own production. There will be no change in organization or personnel in either of the Canadian companies. Duplan will soon have its plant at Winston-Salem, N. C., now under construction, ready for installation of equipment.

Fabrica Victoria de Puente Alto, Santiago, Chile, one of Chile's largest textile manufacturers, is building a new plant to manufacture rayon and other textiles at San Antonio. Over $3,000,000 (U. S.) is being invested in the plant, for which machinery is being bought in the United States.

Pilot Throwing Co., Pilot Mountain, N. C., has started production in combination and silk throwing. Company is owned and operated by V. C. Smith, formerly with Adams-Millis Corp., and M. F. Hancock, until recently with Burlington Mills.

Narricot Co., Philadelphia, Pa., expects to move into its new plant at H and Luzerne Sts. by Jan. 1.

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Father Time had a long head start on us...but we're on the way toward catching up with him. Our manufacturing facilities and our personnel are continually being expanded to meet the tremendous demand for Scott & Williams knitting machines.

The results are beginning to show in our production figures, which are gradually increasing each month. If some of your immediate needs cannot be supplied promptly, may we ask your understanding and cooperation a little while longer.

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Often the most precious luxuries of the past take a place in the everyday life of the world, through the modern miracles of the textile chemist in his laboratory.

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Textile Humidifying Systems

30 WARREN AVE. PORTLAND, ME.

NEWS ABOUT MILLS

Rayon Peruana, S. A., Lima, Peru, has started production of viscose rayon yarn.

Schwarzenbach-Huber Co., Union City, N. J., has obtained a building permit to erect a $310,000 weaving plant in Bethlehem, Pa. The structure will contain 63,000 sq. ft. of floor space.

Stark Bros. Ribbon Corp., an affiliate of Burlington Mills Corp., Burlington, N. C., has purchased Everlastic, Inc., Chelsea, Mass.

Strasburg Silk Mills, Strasburg, Va., has received CPA approval for additions and alterations to its mill. Cost will be $220,000.

United Rayon Mills, Old Fort, N. C., has let contract to Potter & Shackleford, Greenville, S. C., for a one-story rayon-knitting mill. Cost including equipment, will be close to $100,000.

Knitting Mill News

Atomaid Hosiery Co., Dallas, Tex., which started operations last month with an output of 6,000 pairs of nylon stockings per month, plans to increase production to 20,000 pairs after Jan. 1, when additional 51-gage machinery will be installed.

Bassfield Knitting Mills, Bassfield, Miss., recently chartered, will occupy under lease a building which will be constructed.

Blue Ridge Hosiery Mill, West Hickory, N. C., has begun manufacture of men's golf hose. L. B. Van Horn is general manager.

Bradley Knitting Division of George W. Borg Corp., Delavan, Wis., has begun finishing sweaters and sportswear in Janesville, Wis., in a plant occupying 10,000 sq. ft. of floor space. This division had been located temporarily in the old Jefferson School building in the same town.

Bridgewater Textile Corp., Bridgewater, Va., a subsidiary of Celanese Corp. of America, is completing erection of two-story, air-conditioned plant with 46,000 sq. ft. of floor space. Machinery for the production of warp-knit fabrics from Celanese yarns is scheduled to arrive shortly. A. M. Eichelberger has been appointed superintendent of the plant, and Dermot Reddy will be plant engineer.

C & D Yarn & Hosiery Co., Maiden, N. C., is nearing completion on a 80x150 ft. building.

Dolly Hosiery Mills, Valdese, N. C., is engaged in an expansion program which will double plant space.

Ellis Mills, Hickory, N. C., has under way a $200,000 expansion program.

Fortune Hosiery Mill, Lafayette, Ga., has sold its machinery and equipment for about $200,000 to M. D. Hodges, Milledgeville, Ga. The new owner succeeds A. S. Fortune as president and treasurer.

Gilt Edge Hosiery Mills, Inc., Charlotte, N. C., has been chartered with authorized capital of $50,000 to operate a hosiery mill. Principals, all of Charlotte, are James R. Brown, C. C. Auman, and H. L. Holshouser. Equipment is being installed in a building which will be used as a mill. Mr. Brown will be in charge of operations.

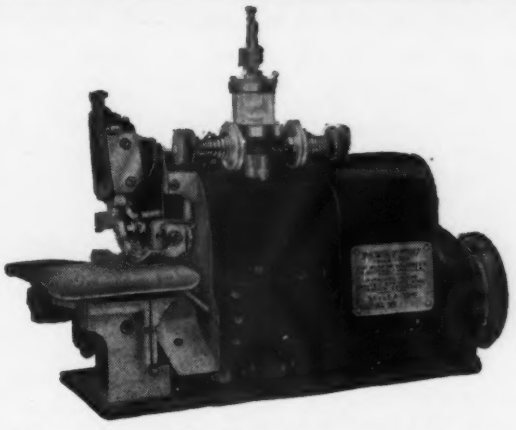
Gloversville Knitting Co., Gloversville, N. Y., has begun limited operations in its new plant in the Scruggs Building, Sweetwater, Tenn. Machinery has been installed, and a training class has been set up for the first group of operatives.

P. H. Hanes Knitting Co., Winston-Salem, N. C., is completing installation of new opening and cleaning equipment. A feature is the use of colored lights to indicate whether or not the feed hoppers are full of cotton.

Humboldt, Tenn. – Daniel Construction Co., Birmingham, Ala., is accepting bids for subcontracts for a $1,000,000 hosiery mill. Completion is scheduled for June, 1947. All buildings will be one-story and will contain 113,000 sq. ft. of floor space.

Knitted Fabrics, Ltd., Montreal, Que., is setting up a plant at 745 Guy Street, Montreal, to spin and knit woolen yarns. R. Dash is vice president and general manager.

Ko-Nit Textile Corp., 112-18 South Dean Street, Englewood, N. J., has opened a plant in a newly-constructed building having 15,000 sq. ft. of floor space. Six of the latest-type Reiner



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OVEREDGING, OVERSEAMING AND HEMMING MACHINES

For Use on Knitted and Woven Wear of All Kinds

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for seamless hosiery knitting

Speak for Themselves

Up-To-Date Machines
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KNITTING MACHINES

meet the needs for Speed—for Quality and Low Cost

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is versatility . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

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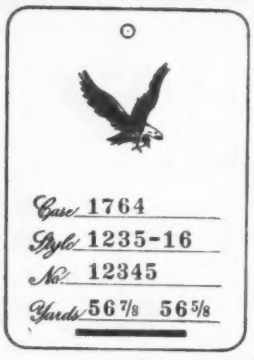

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NUMBERING
MACHINES

Designed Especially For
MARKING TEXTILE MILL TAGS
TICKETS, LABELS, Etc.

Modern textile merchandising demands CLEAR, EASILY READ piece, lot and case numbers, size and yardage lengths, etc. Supply this demand and use the new American Speed Set Gear Construction Numbering Machines. Such numbering with Speed Set machines can be done quickly and easily. Numbers change instantly with touch of fingers and ANY COMBINATION OF NUMBERS can be quickly obtained. All steel wheels, deeply engraved figures, self inking.

Eliminate errors and see that your tags, tickets, labels, etc., are attractively and legibly numbered the SPEED SET way. WRITE TODAY FOR FOLDER describing these new machines used in Cotton, Woolen, Hosiery, Knit Goods, and Dyeing and Finishing plants.

American Numbering Machine Co.
ATLANTIC & SHEPHERD AVES. BROOKLYN 8, N. Y.

• PROCESSING METHODS
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• MATERIALS HANDLING
• MANUFACTURING CONDITIONS
• CONTROLS FOR MACHINES SUPPLIES WASTE QUALITY MAINTENANCE
• ADMINISTRATIVE ROUTINES

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WINDSOR LOCKS, CONN.
BARE ELECTRIC CONDUCTOR & RESISTANCE TINSEL CORDAGE
DECORATIVE TINSEL — LAME — THREADS — CORDS — LAMINETTES
NOVELTY YARNS

high-speed tricot machines and a complete installation of Reiner warping and creeling equipment have been set up. Owner is Erich Kolbe, who also owns Erich Kolbe Co., Union City, N. J.

Lannom Mfg. Co., Grinnell, Iowa, is reported to be planning to move its baseball-yarn plant to Tullahoma, Tenn., and to consolidate its Shelbyville, Tenn., unit which makes knit linings for baseball gloves, with the new Tullahoma plant.

Lasley Knitting Co., Seattle, Wash., was recently formed to manufacture school sweaters. W. A. Lasley and E. V. Walby are partners in the firm.

Lastlong Knitting Co., Oswego, N. Y., has been sold by Kirk H. White to new interests headed by James F. Nields, Jr., of Ware, Mass.

Midway Hosiery Mills, Longview, N. C., is erecting a 40x75 ft. addition which will be 1½-stories. The addition will provide space for 54 knitting machines, and 130 employees.

Munsingwear, Inc., Minneapolis, Minn., is opening a plant in the old Jefferson school building in Park Falls, Wis.

National Hosiery Mills, Ltd., Hamilton, Ont., will start work in the spring of 1947 on a large addition to its plant.

Native Laces & Textiles, Inc., has purchased the Greenwich, N. Y., building and property formerly owned by Linen Underwear Co. The transaction was made through H. & F. Binch, Inc., an affiliate of Native Laces & Textiles, Inc. The new owner will establish a plant for processing laces, and will operate it as a division of H. & F. Binch, Inc.

Ridgeway Hosiery Mill, Newton, N. C., recently completed installation of new machinery. Junius and Cowles Gaither own the company.

Rockwell Hosiery Mill, Rockwell, N. C., which has just put into operation a new 40x140 ft. wing, has included in it a dyehouse and finishing room.

Vogue Hosiery Mills, Inc., Oxford, N. C., was recently organized and has leased space in the Agricultural Building, where machinery is now being installed for men's and children's hosiery. Henry B. Jennings, formerly with Jennings Cotton Mills, Inc., Lumberton, N. C., is president. Ralph A. White, formerly with Conover Knitting Co., Conover, N. C., is superintendent.

Wayne Knitting Mills, Fort Wayne, Ind., has broken ground for its proposed new $1,000,000 plant in Humboldt, Tenn. Daniel Construction Co., Greenville, S. C., has the contract. The plant will employ 350 workers at the start and an estimated 1,000 later on.

Williamson Hosiery Mills is spending $300,000 for new equipment at its Athens and Englewood, Tenn., plants.

Woollner-Crist Co., New York, N. Y., a new company, has purchased the A. W. Prather property on Pope Avenue in West Athens, Tenn., and will establish a plant to manufacture knitted and woven rugs.

York Knitting Mills, Ltd., Toronto, Ont., is making progress with the renovation of the large plant in Woodstock, Ont., formerly occupied by Woodstock Rubber Co. The plant will be used for the manufacture of 54-gage hosiery and will be closely coordinated with Hosiers Ltd., another of the company's plants in Woodstock.

Dyeing & Finishing Plant News

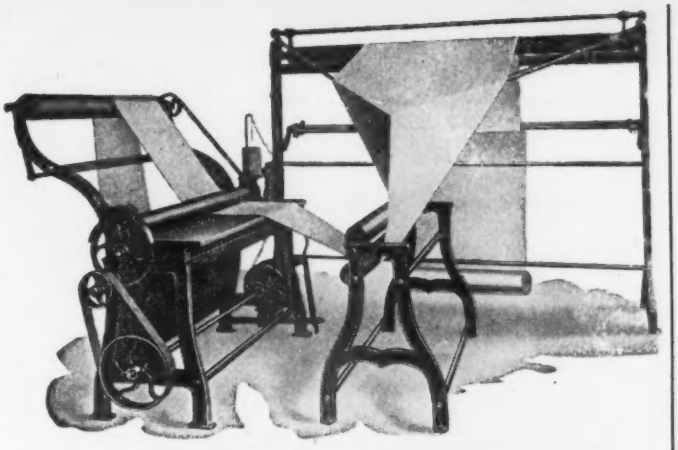
Coaticook Textile Co., Coaticook, Que., plans a one-story addition to cost about $75,000.

Jerman Dyeing & Finishing Co., Monroe, N. C., has been moved to Charlotte, N. C. Hubert Jerman operates the plant.

Kentex Print Works Co., Providence, R. I., has been sold by Kenneth J. Borden to Helm-Tex Printing Corp.

Los Angeles, Cal.—A dyeing plant for cotton, rayon, and wool yarn will be established here by John Smith, who until recently had been superintendent of National Worsted Co., Jamestown, N. Y.

North Georgia Processing Co., Inc., Toccoa, Ga., has awarded contract to Independent Construction Co., Atlanta, Ga., for construction of a two-story addition.



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Sewing any length stitch up to 1¼ in., making a firm, strong stitch for any weight or width of goods. This machine is equipped with our latest oscillating needle bar sewing head, which makes it the fastest tacking machine on the market for tacking the selvages of woolen and worsted fabrics. For further information, send for our catalog.

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Machine and Hand Knitting

Yarns

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BATHING SUITS
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Complete color assortments

American Woolen Company

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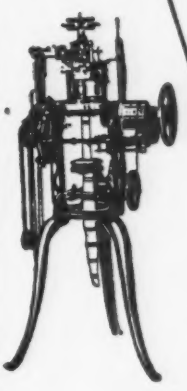
UP GOES PRODUCTION

DOWN COMES OVERHEAD

WITH BRINTON CIRCULAR KNITTING MACHINES



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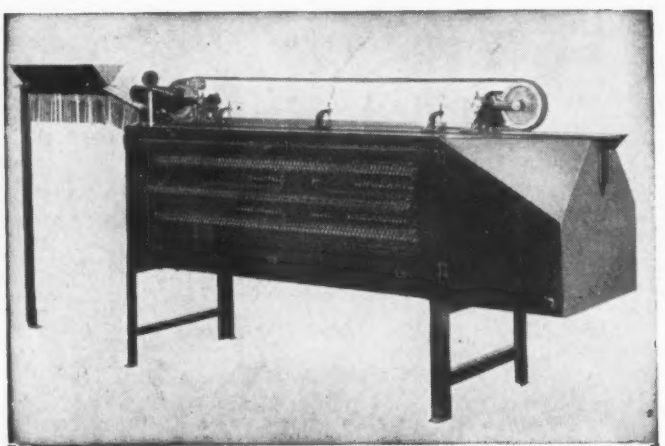

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LOOM BOBBIN STRIPPER
for
RAYON YARNS
The **Terrell Co.,** *Inc.*
CHARLOTTE, N. C.

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NEWS ABOUT *Men*

Robert A. Efroymson has been elected president of Real Silk Hosiery Mills, Indianapolis, Ind., succeeding the late Gustave A. Efroymson, his father. The new president had previously been executive vice president and general manager. **S. A. Robinson,** formerly assistant to the president, is now treasurer, another position which had been held by Gustave Efroymson.

Leon Lowenstein of New York, N. Y., has succeeded **William H. Entwhistle** as president of Entwhistle Mfg. Co., Rockingham, N. C. **George A. Howell** is now vice president and manager of the plant.

Merrill A. Watson has been elected president of the Institute of Carpet Manufacturers of America, New York, succeeding the late Leroy Beers, who held that office for many years. Mr. Watson has been executive vice president of the Tanners' Council of America, having served the council in various capacities for 16 years.

Marland C. Hobbs, president of Arlington Mills, will conduct all correspondence and business connected with the company from the mill offices in Lawrence, Mass. **Franklin W. Hobbs,** chairman of the board, will remain at the company's Boston, Mass., offices.

John L. Hutcheson, Jr., who had been vice president and general manager of Peerless Woolen Mills, Rossville, Ga., is now president and general manager. **John L. Hutcheson, Sr.,** formerly president and treasurer, has been named chairman of the board. **Roy H. Anderson,** assistant treasurer, has become treasurer, and **C. V. McPhail,** assistant secretary, has succeeded the late Harry A. McCulloch as secretary.

H. M. Kaiser is the new president of May McEwen Kaiser Co., Burlington, N. C., succeeding the late J. H. McEwen. Mr. Kaiser had served as executive vice president for a year.

J. W. Wood, formerly of Chadwick-Hoskins Co., Charlotte, N. C., will become president and treasurer of Industrial Cotton Mills, Rock Hill, S. C., on Jan. 1. He will succeed **L. D. Pitts,** who is resigning.

Sam Koenig, head of Capitol Piece Dye Works, Inc., Garnersville, N. Y., is on a trip to Buenos Aires, where it is reported he may study the possibility of establishing a finishing plant.

Robert Amory, who resigned as president of Nashua Mfg. Co., Nashua, N. H., is now with Crescent Corp., Fall River, Mass. He will be in charge of the office which the company is opening in Boston, Mass.

Henry Rose of New York, N. Y., was recently named chairman of the board of directors of Davidson Cotton Mills Corp., Davidson, N. C., and **C. W. Byrd** was elected president and treasurer. Other officers are **T. C. Stevenson,** of Madison, N. J., vice president, and **C. A. Potts,** of Davidson, secretary.

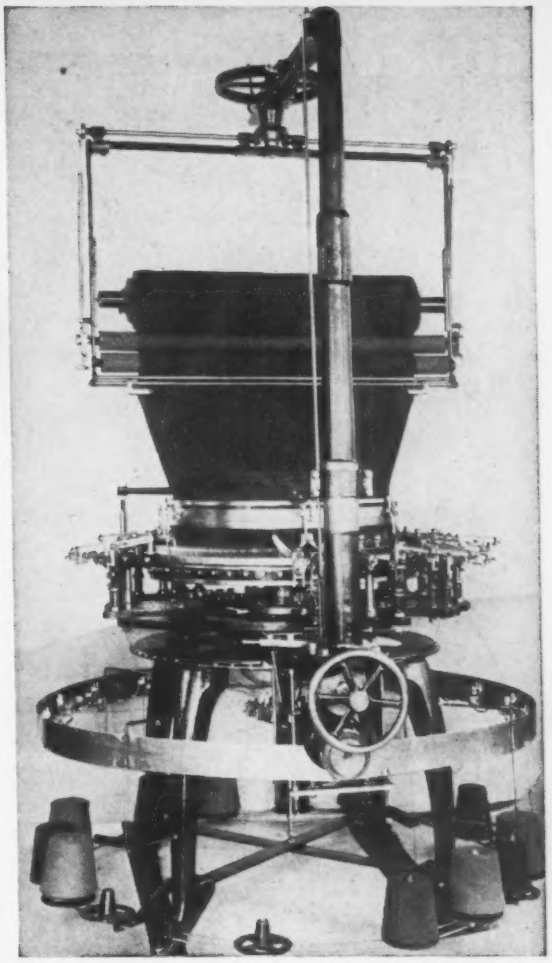
George W. Wright will retire on Jan. 1 as president of Republic Cotton Mills, Great Falls, S. C. **Joe L. Wright** has been appointed superintendent of plant No. 3 to succeed the late John B. Cornwell.

Lawrence Fabrics Corp., New York, N. Y., which recently acquired contral of Lafayette Cotton Mills, Lafayette, Ga., has named the following officers: **Max Herman,** president; **W. A. Enloe,** vice president; **Lloyd S. Hoffstatter,** treasurer; **W. A. Enloe, Jr.,** assistant treasurer; and **Walter B. Shaw,** secretary.

R. H. Wheeler, New York, N. Y., has been elected president of Dyersburg Cotton Products, Inc., Dyersburg, Tenn.

Wardwell W. Jones has been elected president and general

Single Head Spring NEEDLE Knitting Machine



PRODUCES 100 YARDS PER 8 Hr. DAY

The New S-1 Single Head Spring Needle Machine is especially designed for overcoating materials. At the same time, *any* fabric can be knit on it that is knit on the older type spring needle table!

Production is approximately 100 yards per 8 hour day, using 6 feeds.

Features: Electrical driven by V belt simplified motor drive . . . electrical yarnstop motion . . . and needle stop motion.

Install one of these machines today, and in a few hours after reaching the mill it will be ready for operation!

For details write us direct.

TOMKINS BROS. CO., INC.
ONEIDA ST. SYRACUSE, N. Y.

CAMACHINE 26-2A

CONVERTS FABRIC INTO NARROW STRIP IN ROLLS

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For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines: Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY

STEAM FINISHING MACHINERY

Standard Throughout the World

For finishing all types of knitted outerwear fabrics—tubular, flat knitted and woven.

Kastrinsky designs and builds a complete line of a size and type to meet your requirements. These machines are easy to operate with unskilled labor and maintenance costs are low.

You can see them in operation in many of the largest plants in this country and abroad. Tell us your requirements—there's no obligation.

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HERE'S *better, faster* MOISTURE TESTING *for* TEXTILES

PORTABLE
EASY TO USE
NO POINTS TO BREAK OR MAR.
ACCURATE DOWN TO 0%

3 VERSATILE MODELS...

L-2, Flat Surface Type: for smooth surfaced materials.

K-2, Irregular Surface Type: specially designed for rough or smooth materials of any contour.

V-2, Thin Material Type: for thin, smooth surfaced, flat materials.

Scientific calibration, based on standard method for your trade, supplied with each instrument.

MANY APPLICATIONS — Moisture Register is based on principle of high frequency power absorption. All models have wide field of adaptability throughout all industries — as to materials, methods of use and range of moisture content. Special calibrations for specific needs supplied at nominal cost.

WRITE TODAY for complete information, specifying type of material and range of moisture content to be tested.

MOISTURE REGISTER COMPANY

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ELECTRONIC MOISTURE REGISTER FOR TEXTILES

NEW! *"Standard"*

CORK COVERED CONES

with Protected Tip and Base

Prevents chipping of cork, permits correct winding at beginning of cone, allows removal of yarn without waste or breakage . . . and LASTS LONGER.

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1896 — Our Fiftieth Year — 1946

• Contact Standard Mill Supply Co. for everything you may require in Textile Mill Supply Items as well as Machinery and Accessories for the Preparation, Spinning, Weaving and Finishing of Cotton, Wool, Worsted, Rayon, Silk and Nylon.

manager of Utica Duxbak Corp., Utica, N. Y., succeeding the late Ralph W. Jones. Alan C. Jones and Everett D. Williams have been named vice president and secretary-treasurer, respectively.

James A. Irvine, industrial relations counsellor, has become associated with the National Association of Cotton Manufacturers, Boston, to establish an Industrial Relations Service Department for the use of member mills. He is a graduate of Lowell Textile Institute, and has had many years experience in industrial and labor relations in the textile field, including ten years with Cheney Bros. and four years with Pacific Mills.

Aaron B. Quinn has been appointed vice president and general manager of Cleveland Cloth Mills, Shelby, N. C. Mr. Quinn was secretary of the company before it became a subsidiary of J. P. Stevens & Co., New York, N. Y.

W. Dewey Davis has been elected a director and vice president of National Mallison Fabrics Corp., New York, N. Y., succeeding Paolino Gerli, who resigned.

Robert D. Abbott has been elected vice president of Moniteau Mills, Inc., California, Mo., succeeding the late George A. Peck. Mr. Abbott has been associated with the company for 15 years as counsel and director.

Frank R. Scull, sales manager of A. M. Tenney Associates, New York, was recently honored at a luncheon tendered to him by the Textile Salesmen's Association.

C. M. Bowden, Southern editor of TEXTILE WORLD, Charlotte, N. C., spoke at the Industrial Feeding Workshop, a state-wide symposium under sponsorship of the Production & Marketing Administration, in Charlotte Nov. 12. Mr. Bowden's subject was "Present and Potential Industrial Feeding Program in North Carolina."

Edward F. Shiel has been made general sales manager of Alexander Smith & Sons Carpet Co. and C. H. Masland & Sons, New York. He has lately been department manager in charge of the sale of Alexander Smith rugs, in which position he will be succeeded by William F. Walsh.

I. I. Bruck, president of Bruck Silk Mills, Ltd., Montreal, was recently elected chairman of the board of Bruck Mills (Australia), Ltd., Melbourne, Australia.

Luther H. Hodges, vice president of Marshall Field & Co. and general manager of the concern's manufacturing division, New York, is serving as chairman of the 1948 convention committee of Rotary International.

Louis Cohen, for many years head of the Powell Knitting Mills Co., Brooklyn, N. Y. and in the sweater business for more than 25 years, has joined Manhattan Shirt Co., New York, as head of the Mansco Sweater Department.

Durene Association of America, New York, last month elected the following officers for the coming fiscal year: J. B. Frierson, Jr., Dixie Mercerizing Co., president; Harry Horrocks, American Thread Co., Hampton Yarn Division, vice president; J. P. Holt, Aberfoyle Mfg. Co., treasurer; and A. C. Layton Newsom, executive secretary.

Charles K. Seid has been named vice president and director of the Pawtucket, R. I., branch of Peerless Mills Co.

J. Harold Lineberger has been appointed secretary-treasurer of Linford Mills, Inc., Belmont, N. C.

Courtland Palmer, treasurer of Palmer Mills, Inc., Birmingham, Ala., has become president of the company, succeeding T. Reed Johnson.

Harold W. Whitcomb, now divisional vice president and assistant general manager of the manufacturing division of Marshall Field & Co., Spray, N. C., will assume the duties of production manager when F. Frank Wilson retires on Dec. 31.

C. R. Zehntbauer, executive vice president of Jantzen Knitting Mills, Portland, Ore., will direct manufacturing operations at the Portland plant. Other appointments include G. Robert Dodson, who will manage the

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for de-sizing cottons, rayons and mixed goods

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Assures rapid, dependable de-sizing.

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For the Hosiery and Knitting Trades

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We are equipped with the latest developments in processing machines, assuring continuous production of highest standards of workmanship.

For best results have your yarns processed by

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For the lubrication of cotton and rayon yarns to improve knitting and weaving qualities.

May be added to the dye bath or applied as after treatment.

Ask for details and samples.

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Charles F. Rogers, Jr. — Manager

swim-suits division; **Willard White,** who will manage the play-clothes division; and **Herman Boyer,** who succeeds **Henry German** as controller.

Burke M. McConnell, vice president of Burlington Mills Corp., Greensboro, N. C., has been named assistant general manager of the company, and nine other key men are being assigned to positions of greater responsibility in a rearrangement of the company's administrative set-up to meet demands of the company's growth. Managers of new operating divisions being created are: **D. A. Gryder,** former superintendent of the Plaid, Ossipee, and Bellemont units, who will be in charge of the spun-woven division and will move his office from Burlington, N. C., to Greensboro; **Arthur L. Burnet,** former assistant in the spinning division, who will head the spinning, knitting, and woolen division; **J. E. Garvin,** former assistant in the weaving division, who will direct the filament-throwing and weaving division; and **Grover C. Furr,** former general superintendent of hosiery plants, who will be manager of the hosiery division. In addition, **Leroy A. Stadler,** formerly with the weaving division, will be director of manufacturing and technical research; **W. Bailey Sellars** will be director of yarn and chemical research; **S. Eugene Rowe,** formerly in charge of the controllers department, will direct public relations; **R. N. Stokes,** formerly assistant controller, will be controller; and **K. H. Boydell** will head the newly-formed construction, engineering, and maintenance department.

W. E. Vecsey, formerly manager of Aldora Mills, Barnesville, Ga., a subsidiary of General Tire & Rubber Co., will direct all of the latter company's textile activities. His headquarters will be in Akron, O. **Leon E. Marcomber,** until recently with Pepperell Mfg. Co. at its Biddeford, Me., plant, will succeed Mr. Vecsey at Aldora Mills.

Ralph H. Balch has been appointed assistant manager of Staunton Textile Corp., Staunton, Va., a subsidiary of Celanese Corp. of America. He was previously engaged in research and development work at the Celanese plant in Cumberland, Md.

Fred T. Lawson succeeds **Aaron Quinn** as plant manager of Cleveland Cloth Mills, Shelby, N. C., **Howard Rollins** and **James W. Corbett** will be superintendent and office manager, respectively. **J. E. Bell** will direct research laboratories maintained in Shelby by J. P. Stevens & Co., of which Cleveland Cloth Mills is a subsidiary.

E. Max Schenke, at one time technologist with National Association of Hosiery Manufacturers and lately chief of the Knit Goods Section of CPA, has joined Montgomery Ward & Co., Chicago, in a production capacity.

Warner W. Bayley has joined Sidney Blumenthal & Co., Inc., New York, as research director after distinguished service in the Navy and several industrial connections in the field of metals.

Col. Letcher O. Grice has been appointed commanding officer of the Quartermaster Purchasing Office in New York, succeeding **Col. Herbert A. Gardner,** now on a new assignment in Washington, D. C.

R. T. Watson, just released from active duty in the Army's Engineer Corps has joined the organization of Native Laces & Textiles, Inc., New York, to have charge of all construction work on the company's building project in Dallas, Pa.

William A. Spatz has been appointed superintendent of Rector Woolen Mills, Manayunk, Philadelphia, Pa. **Joel McCannon** is boss carder and **Ajenor Bourque** is boss spinner.

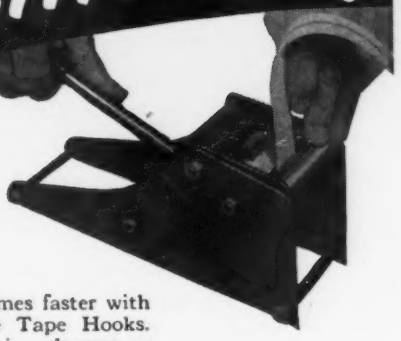
Richard L. Bowditch, a director of Ludlow Manufacturing Associates and president of C. H. Sprague & Son Co., Boston, has been elected president of the New England Council.

Charles L. Bopp has been appointed purchasing agent and with William F. Lanier as assistant for Pendleton Mfg. Co., a division of La France Industries, La France, S. C., to succeed **John P. Gambrell,** who recently resigned.

James E. Robison has been appointed general sales manager of Nashua Mfg. Co., New York.

Mrs. Eleanor Howard has been appointed promotion di-

10 TIMES FASTER THAN STITCHING!



SPINDLE TAPE LACING EQUIPMENT

Lace spindle tapes 10 times faster with Clipper No. 25 Spindle Tape Hooks. Tapes can be prepared in advance so frame is shut down only long enough to place new tape on the pulleys and join ends with connecting pin. Tapes run true—last longer—run smoother—require less tension—VIBRATION IS ELIMINATED

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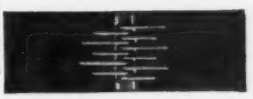
Lace condenser tapes with Clipper No. 25 Condenser Tape Hooks. Clipper laced tapes, prepared in advance, can be installed in a fraction of the time required for endless tapes Tape may be purchased in the roll at considerable saving.



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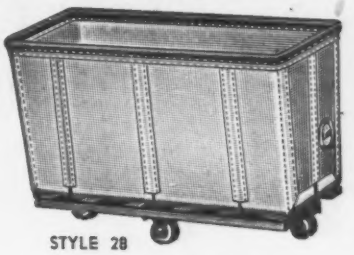
Clipper BELT LACING EQUIPMENT



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For the well equipped mill

W. T. LANE & BROS., INC.
Manufacturers, Poughkeepsie, N. Y.

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Two exclusive features Affording Long Life

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.
2. Holding wings held positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters and winders.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Fifty Years

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell Service, which includes Stainless Steel-lined tanks and tubs — round, rectangular and special shapes.

Catalog on request.

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ALL STEEL ECONOMY BALING PRESSES

ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.

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For over 45 years, Cloverleaf Bobbins have been built to meet, with scientific exactness, the varying conditions and processes of individual manufacturers.
No matter what type bobbin you need, come to Cloverleaf. Our Organization is constantly engaged in developing new types of bobbins, keeping ahead of every need of the Textile Industry.
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rector of Bell-Miron Inc., New York, makers of Miron woolens.

William Herrick is the new resident manager of Pendleton Woolen Mills, Pendleton, Ore. He was formerly with Miltonia Mills, Milton Mills, N. H.

W. Roddy Gaudle, who recently came out of the Navy to rejoin Nebel Knitting Co., Charlotte, N. C., has been named secretary. **Charles E. Hicks,** vice president, has been elected to a membership on the board of directors.

Herbert Darnell has been named overseer at Veterans Mills, Inc., Calhoun, Ga.

D. R. Whitener is now superintendent of Waxhaw Spinning Co., Waxhaw, N. C.

Jackson L. Weldon has resigned as assistant superintendent of Dixie Cotton Mills, LaGrange, Ga., a division of West Point Mfg. Co., to become manager of Seminole Mills, Clearwater, S. C., a unit of United Merchants & Manufacturers.

J. Emile Poirier, until recently associated with Heywood Woolen Co., East Douglas, Mass., is now manager of Rocky Mountain Textile Mills, Denver, Colo.

Recent appointments by Textron, Inc., Providence, R. I., include **Oliver May,** assistant treasurer in charge of finance; **Sam S. Mullin,** assistant treasurer in charge of organization; and **Franklin H. Kissner,** controller.

Donald S. Cook, manager of the Biddeford, Me., division of Pepperell Mfg. Co., has resigned, effective Jan. 1. He will be associated thereafter with Wehadkee Yarn Mills, Talladega and Rock Mills, Ala., in connection with the development of a new project. **Lyman H. Smith,** Mr. Cook's assistant, will succeed him.

I. B. Grainger, Jr., who recently returned from the Navy, will manage the new $750,000 plant of Chadbourn Hosiery Mills, Inc., Wilmington, N. C.

J. G. Scherf, textile executive of Andalusia, Ala., plans the construction of a textile mill in Panama City, Fla. Plans are now being prepared by engineers.

Obituary

Garnett Andrews, Sr., 76, president of Richmond Hosiery Mills, Rossville, Ga., died Nov. 11. He was also vice president of Rockwood Mills, Rockwood, Tenn., and was connected with Magnet Mills, Inc., Clinton, Tenn., where he served as president for many years. He was founder of Harriman Hosiery Mills, Harriman, Tenn., and until recently its vice president. He was twice president of the former National Association of Hosiery & Underwear Manufacturers, and in that capacity was instrumental in drawing up hosiery schedules of the Aldrich-Payne Tariff Act.

George F. Lang, 57, president of Full-Fashioned Hosiery Manufacturers Association, died in Abington, Pa., Nov. 12. As head of the manufacturers' group he represented 36 hosiery mills in labor relations with the Federation of Hosiery Workers, CIO, for the last 10 years.

D. B. McCrary, 71, Asheboro, N. C., hosiery manufacturer, died Oct. 28. In 1909, Mr. McCrary and W. J. Armstrong purchased the Acme Hosiery Mills, then making women's cotton stockings. The Sapona Mfg. Co., Cedar Falls; McCrary Hosiery Mill, Asheboro; and Ramseur were outgrowths of the Acme industry. The McCrary plant began manufacturing full-fashioned hosiery in 1927. Mr. McCrary was president of each of the plants except Acme. He was mayor of Asheboro, 1915-19 and 1925-27. He was president of the Bank of Randolph, and the first president of the Asheboro Chamber of Commerce.

Gustave A. Efroymson, 76, president of Real Silk Hosiery Mills, Inc., Indianapolis, died recently. He began his business career when 14 years old as an employee of a small dry goods store.

Brenton H. Dickson, Jr., 79, Weston, Mass., died Oct. 15. He was president of B. H.

Dickson & Co. and a director of other mills. He retired in 1930.

Sumter Cogswell, 86, who organized a textile mill at Pell City, Ala., and later sold it to Avondale Mills, died Nov. 8.

W. A. Shoffner, 85, Burlington, N. C., retired hosiery manufacturer, died Nov. 4.

William Horace Newton, 65, president of Trio Mfg. Co., Forsyth, Ga., died Oct. 24.

Jean Bouchard, of Bouchard & Charvet, Inc., dyers and finishers, Paterson, N. J., died recently. Mr. Bouchard came from Lyon, France, more than 40 years ago. He was at one time associated with the United Piece Dye Works and the Royal Piece Dye Works.

Saul Ades, founder of the Superior Textile Co., North Vernon, Ind., died recently in Indianapolis.

Abraham Blumberg, 67, one of the founders of Yaffe & Blumberg Hosiery Co., Reading, Pa., and its treasurer, died recently.

William E. McKinney, 74, pioneer in the textile industry of Georgia and Alabama, died in Atlanta Nov. 3. Before his retirement, he was superintendent of Arnall Mfg. Co., Elberton, and had served with Fulton Bag & Cotton Mills and Exposition Cotton Mills, Atlanta.

Charles E. Brady, 60, long identified with the textile industry in New England, died recently. Mr. Brady had just become associated with Saco-Lowell Shops in Boston in their foreign department. He had previously been superintendent at the Howard-Arthur Mills in Fall River. He had at one time been associated with Berkshire Fine Spinning Associates, Inc., Lincoln Mills, Parker Mills, Nonquitt Mills, and Foster Spinning Co.

E. E. Sheehey, 67, secretary-treasurer of Corsicana Cotton Mills, Corsicana, Tex., died Nov. 13. He had been associated with the mills since 1911.

Alvin C. Carpenter, 77, vice president and director of Bemis Brothers Bag Co., died at his home at St. Louis Mo., Nov. 5. He was also a member of the executive committee of the Textile Bag Manufacturers Association for many years.

John J. Campbell, 79, of Germantown, Pa., founder of the dyeing and finishing plant bearing his name, died recently. He established his business in 1896.

William L. McEvoy, 53, chemist for Worcester Spinning & Finishing Co., Cherry Valley, Mass., died Oct. 23.

Hector G. Macdonald, manager and chemist of Cook Yarn & Dye Works, Phillipsdale, R. I., died recently at his home in Rumford, R. I. Prior to joining Cook, he was 18 years assistant manager of Franklin Process Co., Providence, R. I. He was a member of the American Association of Textile Chemists & Colorists.

Robert H. Teat, 48, general sales manager of Dunson Sales Co., New York, died recently in New York. Mr. Teat joined the newly-organized firm last January. Previously he had been with Callaway Mills for 23 years.

William F. Cochran, Jr., a director of Alexander Smith & Sons Carpet Co., and grandson of the founder, died recently at his home in Brooklandville, near Baltimore.

Charles A. Fountain, 69, of North Adams, Mass., for more than a quarter of a century conciliator in labor disputes in such textile centers as Lowell and Lawrence, died Nov. 8.

Aaron G. Keyser, 67, Boyertown, Pa., died Nov. 7. He was for many years affiliated with United Underwear Mills, Boyertown, Pa.

Roy Charles Keeton, 45, died Nov. 7. He was Southeastern manager for the Vanette Hosiery Mills, Dallas, Texas, with offices in Atlanta.

William S. Armstrong, Jr., 69, personnel manager of Glenlyon Print Works of Sayles Finishing Co., Inc., Phillipsdale, R. I., died Nov. 9, in Pawtucket, R. I.

William A. Campbell, 54, assistant general sales manager of Bibb Mfg. Co., Macon, Ga., died recently. He had been associated with Bibb since 1925.

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it runs more efficiently, producing a finer quality product that can be sold easier and more profitably
made of Durene
multi-ply mercerized cotton
4 WAYS BETTER than ordinary cottons
EXTRA COMFORT more absorbent
EXTRA STRENGTH longer wear
EXTRA QUALITY lasting lustre
EXTRA SERVICE easy to wash

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TEXTILE MILLS • RAYON PLANTS • KNITTING MILLS • DYE HOUSES
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GEARS TO ORDER
Spiral and helical gears; special couplings, bushings and collars; pins, pulleys and rollers. Made to your specifications—promptly.
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NEW ADVERTISEMENTS received by 10 A. M. December 30th will appear in the January issue, subject to limitation of space available.

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POSITIONS OPEN

Managers and superintendents for underwear, hosiery, rayon cloth mill, woolen yarn, cotton mills, elastic and non-elastic narrow fabrics, cutting and finishing men's shorts and swimming trunks, salaries $4,000 — $20,000 year

Agent, to sell solutions, with following among coaters of fabrics
Accountants, salaries $50 week up to $6,000 year
Lot chaser and production clerk (young) for printing plant $3,000 year
Pile fabric designer and overseer weaving
Overseer woolen carding and frame spinning $80-100
Boss dyer, cotton raw stock, yarns, long chain indigo
Woolen, cotton, worsted and shoddy boss carders and second hands
Chemist and laboratory man for textile chemical mfg. plant
Boss spinners (cotton, woolen, worsted)
Boss knitters
Boss weaver Draper looms on woolens
Foreman sweater finishing
Worsted yarn and top mill superintendents, overseers and section hands carding, combing, drawing, spinning, winding, twisting
Master mechanics and plant engineers
Woolen designer
Boss sewer $100-150 week
Cotton cloth room overseer $75
Boss picker (woolen mill)
Tompkins machine fixers
Foreman waste dusting and blending
Cotton mill men for So. America
Woolen-worsted skein yarn dyeing $5,000 year; woolenpiece dyer $6,000 year
Time study men and industrial engineers
Sewing machine fixers, sizer-slasher cotton system $75; second hands and fixers all departments, dresser tenders
Overseer burling and mending, woolens and worsteds and many others.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St. Boston, Mass.
Over 45 years Confidential Employment Service for Textile Mills

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COLOR CHEMISTS AND DYERS

FOR THE

South-American Plants

of a large American Textile Organization

Must be experienced. Graduation from textile school desirable but not essential.

Good salaries plus traveling expenses, bonuses, and other allowances. Excellent opportunities for advancement as these are new plants.

Write immediately giving background of training and experience and personal qualifications so that interviews can be arranged.

P-943, Textile World
330 West 42nd St., New York 18, N. Y.

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WANTED

Excellent opportunity in woolen mill for top notch yarn superintendent. Must have thorough knowledge of carding and good experience in all other departments. Company located in Massachusetts is long established and interested only in high quality man desiring permanent position.
Wanted by our client.

Apply only in writing to

Barnes Textile Associates, Inc.
10 High Street, Boston, 10, Mass.
Replies will be held strictly confidential.

OPPORTUNITY IN SOUTH AMERICA

for rayon textile assistant, experienced in handling unfinished viscose rayon yarn, including all processing operations from twisting to the finished skeins.

Write P-932, TEXTILE WORLD,
330 West 42nd St., New York 18, N. Y.
stating experience, qualifications and salary desired.

WANTED

Young Man for

Assistant Superintendent

Must be Textile School Graduate with practical experience in Scouring, Carding, Combing, Drawing, Spinning (Bradford System). Give full particulars in first letter. Reply

P-884, Textile World
330 West 42nd St., New York 18, N. Y.

Chemist or Chemical Engineer
with
Experience Spinning Synthetic Fibers

East Coast industrial research laboratory desires man with mill and/or research experience to do research and development. Salary commensurate with qualifications. Please give complete details of experience, education, and salary desired. Include recent snapshot.

P-926, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED
CAPABLE
SUPERINTENDENT—FIXER

Familiar with full fashioned hosiery machines and capable of taking charge. Excellent future for such a man in a Latin-American country. Reply

P-888, Textile World
330 West 42nd St., New York 18, N. Y.

POSITIONS VACANT

BOSS CARDER for second and third shift wanted for first-class woolen mill located in New England. P-862, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED FOREMAN to have complete charge of narrow ribbon mill of 20 looms. Must know how to fix looms, calculate, etc. State full particulars as to experience, age and salary. Strictly confidential. P-929, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT—for a French Worsted Spinning Plant located in New England. Must be thoroughly familiar with both drawing and spinning and must be a good production man. We must improve our quality as well and will pay well for the right man. P-935, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

TEXTILE CHEMIST available with twenty-three years' experience in cotton and rayon piece goods dyeing and finishing. Age forty-eight, unmarried. Able to take charge of laboratory. College degree. Prefer Philadelphia area. PW-869, Textile World, 330 W. 42nd St., New York 18, N. Y.

EXPERT in cotton spinning with wide experience in Argentina and Peru, working with European and American machinery—knowledge of high stretching Casablanca system—wants to obtain position. Any location. References certified. J. Monks, 1330 Morris Ave., Bronx, N. Y.

ENGLISHMAN, 39, married, in charge large cotton mill in India wishes obtain position as Manager in U.S., South America. College-trained, 4 years experience with well-known machinists, 7 years in charge research plant of large Cotton Research Institution, followed by 9 years experience in the East. Used to poor labor, latest methods processing combed carded single and doubled yarns. Can produce excellent references. Free early 1947. PW-901, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT of cotton yarn mill, with twenty-five years experience producing carded, combed and blended yarn, desires to make a change. Fully capable of managing mill from the purchasing of cotton to the selling of product. Several years engineering experience has equipped me with sufficient knowledge to produce quality work at a minimum cost. Age 47, married with family. PW-902, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

EXECUTIVE'S ASSISTANT: Phila. Textile Institute graduate with 13 years practical experience in shaft and Jacquard fabrics. Well versed in fabric designing, layout, casting analysis, production control and mill management. 33 years of age. Apply PW-936, Textile World, 330 W. 42nd St., New York 18, N. Y.

THROWSTER, Hosiery Tram Nylon, Silk, Rayon, experienced on all makes of throwing machinery and method of modern throwing. At present employed with large hosiery mill as throwster but desire to make a change. PW-937, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on the opposite page)

CHEM. ENGRS.—PATENT ATTYS.

Chem. or Petroleum Engr.—Patent Atty. — 30-35 — Considerable Exp. All Phases Patent Work—Penn

Salary to $7,200

SPECIALISTS ELECTRONICS—PHYSICS

College Grad.—To Handle Petroleum Patent Work for Southwest Producing Area—30-35

Salary to $7,200

SHAY EMPLOYMENT AGENCY
30 W. Washington Chicago 2, Ill.

Additional Position Vacant ads on opposite page

SEARCHLIGHT SECTION

PLANT MANAGER

DYEING, PRINTING AND FINISHING

Thoroughly experienced in plant management, processing and production, full knowledge of all equipment and its operation, desires new contact where knowledge and ability can be used to full advantage. Interested in new projects or reorganization of present set-ups.

PW-800, Textile World
330 West 42nd St., New York 18, N. Y.

BRIGHT TEXTILE ENGINEER

Young and ambitious, thoroughly grounded in mill teamwork will take position foreign or domestic. Fluent French, Spanish. Know production problems, training of personnel, all phases textile field. Former army officer. Lack of many years experience compensated by initiative competence, and intelligence.

PW-918, Textile World
330 West 42nd St., New York 18, N. Y.

Reliable man wants position with Reliable Firm as Branch Depot Manager in High Point, N. C.

Information available.

PW-924, Textile World
330 West 42nd St., New York 18, N. Y.

POSITIONS WANTED

(Continued from opposite page)

KNITTING MACHINE Fixer and Looper. Sixteen years experience on Scott & Williams Mach. & loopers. 32 years of age. Considered first class Machinist. Able assume responsibility of production, and personnel. Excellent references. PW-938, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

AVAILABLE—Weave room overseer, 8½ years experience. Experienced in analyzing and designing of cloth. Experience Draper dobby and cam loom fixer. Familiar with government regulations through 9 months duty as government textile inspector. Presently employed as second hand. PW-939, Textile World, 330 W. 42nd St., New York 18, N. Y.

THROWSTER: Specialist on all weaving and hosiery yarns, experienced on old or modern throwing machinery throughout plant. Executive ability to handle people, general knowledge of weaving and knitting. Age 45, married, presently employed seeks wider opportunity. PW-940, Textile World, 330 W. 42nd St., New York 18, N. Y.

COLLEGE TEXTILE Engineering Graduate desires to become located in Southern States as Salesman or Sales Engineer. Ten years production, engineering, and sales engineering experience will consider an offer in South America. Now employed. PW-941, Textile World, 330 W. 42nd St., New York 18, N. Y.

CHEMICAL ENGINEER with 24 years rayon mfg. plant experience in production, research and administrative branches, congenial, energetic, with special aptitudes for assuming responsibility, making sound decisions, reducing costs, improving product quality, developing new products, is interested in connecting with a textile chemical, or other organization where his experience, knowledge, and ability can be used to advantage. Thorough knowledge varied chemical equipment, labor relations and organization problems. Age 46, presently employed as plant manager. New York City area preferred. PW-942, Textile World, 330 W. 42nd St., New York 18, N. Y.

SELLING OPPORTUNITY WANTED

HOLLAND—Having connections with all the manufacturers of knitted goods, hosiery and underwear in Holland, I would like to represent Yarns for all Textiles, Manufacturing of Textiles, Manufacturers of Textile Machinery and Needles for knitted goods. H. J. Hofs, 11 Hindelaan, Hilversum, Holland.

TURKEY
COMMISSION AGENT

Well established firm interested in handling, cotton yarns, cotton goods, woolens and woolen yarn, rayon and rayon yarn.

RA-946, Textile World
330 West 42nd St., New York 18, N. Y.

Att. Spinner Conv., Jobber & Agents of Knitted Fabrics

Reputable Knitting Mill desires contract knitting on Tompkins & Brinton machines Wool, Cotton Jersey, Fleece, Terry Cloth, Cut Presser Work etc.

CW-921, Textile World
330 West 42nd St., New York 18, N. Y.

An Opportunity
in NORTHERN INDIA

WANTED a Technical or a Technical-cum-General Manager for one of the biggest Cotton Mills in Northern India. Wide experience of the working of cotton spinning, weaving and finishing in India and/or foreign countries essential. Salary no object for a really qualified and experienced person. Free furnished house in addition to remuneration. Apply with copies of testimonials and experience.

Box 44, Doremus & Company,
Advertising, 120 Broadway,
New York City.

WANTED
PHYSICIST OR ENGINEERING PHYSICIST

With experience in Textile Fibre research and microscopy. Type of work would include engineering development and research. Location Northeast Ohio. Relpy giving age, education, experience, salary desired and enclose recent photograph. Apply

P-914, Textile World
520 North Michigan Ave., Chicago 11, Ill.

EXPERIENCED MAN

TO TAKE COMPLETE CHARGE OF MODERN MEN'S NECKWEAR MILL

MANUFACTURING FANCY SHAFT AND JACQUARD FABRICS.

EXCELLENT OPPORTUNITY FOR RIGHT MAN.

ALL CORRESPONDENCE STRICTLY CONFIDENTIAL.

WRITE

P-917, Textile World
330 West 42nd St., New York 18, N. Y.

SALES REPRESENTATIVE

Nationally known manufacturer of chemical specialties for rayon processing offers unusual opportunity for qualified sales representative in Pennsylvania territory. Must understand throwing, sizing and weaving processes, all types synthetic knitting and weaving yarns, including Nylon. Selling and practical mill experience preferred. Give complete information including age, education, training, experience, references.

RW-885, Textile World
330 West 42nd St., New York 18, N. Y.

We are principals acting in our own behalf willing to

PAY YOU IMMEDIATE CASH

FOR ASSETS or CAPITAL STOCK of . . .

- **INDUSTRIAL PLANTS**
- **MFG. DIVISIONS or UNITS**

All transactions held in strictest confidence.
Personnel retained wherever possible.
Address: Box 1234, 147 W. 42 St., New York 18, N.Y.

WANTED

(Additional Wanted ads on pages 266 & 276)

WANTED

5,000 to 10,000 square feet
FACTORY SPACE

in vicinity of Mystic, Connecticut. Write giving details.

W-923, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED
MILL

A completely equipped cotton spinning mill, capable of turning out yarn 30/1, 40/1, 50/1.

HENRY GREENBERG
126 Broad St., New York 4, N. Y.
WH-3-7185-6-7

WANTED

Chemicals, Dyes, Gums, Oils, Waxes, Greases, Pigments, Residues, By-Products, Wastes

JUST LIQUIDATORS, INC.
129 Pearl Street New York 5, N. Y.

PROFESSIONAL SERVICES

FABRIC DEVELOPMENT CO.

Consulting Technologists

Design of textiles for specified uses
Product improvement and standardization
Cloth analysis, layouts, and weaving drafts
Specifications for raw and finished materials
Surveys and reports

P. O. Box 326 Times Sq. Sta. New York 18, N. Y.

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Plant Modernization

Industrial Heating, Drying,
Ventilating and Baking Equipment,
Designing, Engineering, Installation & Supervision.
Your Inquiries Solicited
110 E. 42nd St., New York 17, N. Y. LE. 2-1270

WANTED

(Additional Wanted Ads on pages 265 and 276)

WANTED—For Export

LOOMS **SPINNING MILLS**

WARPERS **CARDS**

SPOOLERS **COMBERS**

Dyeing and Bleaching Equipt.

In fact all types of Textile Machinery

We buy for cash f.o.b. mill floor

W 931 Textile World
330 West 42nd St. New York 18, N. Y.

WANTED TO PURCHASE

BY MANUFACTURER—

SKEIN SILK WINDERS, No. 90 UNIVERSAL QUILLERS, LOW BEAM 83-INCH SIPP WARPERS.

STATE SPECIFICATIONS AND PRICES.

W-928, Textile World
330 West 42nd St., New York 18, N. Y.

Wanted to buy for export Scott & Williams HHPW machines, or Banner 19 step wrap machines fitted with elastic top attachments. Please give complete details of machines as to diameter, number of needles, age, attachments, serial numbers, price, etc.

W-887, Textile World
330 West 42nd St., New York 18, N. Y.

SWEDISH IMPORTER

Wishes To Buy:

Cotton Duck, Flannel, Cotton Cloth Twill, Unbleached or Unicolored.

Offers with sample to:

Jofa, Jonssons Fabrikers A/B, Malung, Sweden

WANTED

DUBIED, SEIFERT & DONNER and GROSSER

WIDENING MACHINES

6, 7 and 8 gauge.

Write to

W-730, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

Twisters
6" Gauge
8" to 9" Traverse
4½" diameter rings

W-919, Textile World
330 West 42nd St., New York 18, N. Y.

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.

WANTED

CONE REDUCER

10 x 5 worsted cone reducer

MERRIMAC MILLS COMPANY
Methuen, Mass.

YARN WANTED

First class knitting mill, capacity 6,000 pounds weekly, wants 20/1, 24/1, and 30/1 best available yarn.

W-933, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

LOOMS

C & K Fibre Art Square Looms—Various widths needed. Write

W-894, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

CARDED COTTON YARN

One ton of carded cotton yarn, sizes 30/1, 40/1, 50/1 and 60/1 for export.

HENRY GREENBERG
116 Broad St. New York 4, N. Y.
WH-3-7185-6-7.

YARNS WANTED

Wanted to purchase surplus yarns of all types — cotton, rayon, acetate, nylon, silk, wool, spuns, and blends.

W-947, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

SINGERS

31-15 66 127 15-30

BOUGHT AND SOLD

ESSEX SHOP
172 Washington St. Newark, N. J.

They stopped eating sheep in 1765 to boost the American woolen industry

THE American woolen industry started in Philadelphia around 1760—and in 1765, to help things along, citizens and butchers agreed not to kill and eat sheep under 12 months old, for a period of two years. In 1775, Samuel Wetherill, Jr., had a factory in South Alley, supplying woolies for the Revolutionary Army . . . but when the price of wool went so high he faced loss . . . Sam just up and notified the War Board he couldn't fill his contract! Maybe that's what helped make that famous winter at Valley Forge seem so much colder!

MLC SERVING THE TEXTILE INDUSTRY MLC

3—Batchers or Rolling up machines, 60", 65", 70"
2—#100 Sturtevant Blowers, paddle type
2—C&M 2-cylinder Brushing machines, 62½" and 72"
3—Button Breakers, 2-48", 1-50"
1—48"x60" Bridesburg Card Set, 2 cylinders, wood
1—48"x48" Furbush & Gage Card Set, 3 cylinders, wood
1—100 spindle #25 Foster Doubler, with 5 HP motor
1—6-delivery H&B Drawing Frame
1—Set 20 H.W. Butterworth 108" Dry Cans, dryer, motor driven, with Reeves drive
1—Reeves Drive, Range 3-1, Size 6, Class G
1—Reeves Drive (small)
1—72" Schofield Automatic Duster
1—54" x 54" Batch Type Waste Duster
1—7' Sargent Cone Duster, Wooden Cylinder, Iron Frame.
2—26" Tolhurst Extractors, belt driven
1—30" American Laundry Extractor
6—40" and 60" Tolhurst Extractors
1—45" Dobson & Barlow Cotton Feeder
5—40", 42" E&H Flat Folders with take-up stands
1—66" Folder (ceiling or machine)
1—100" C&M Flat Folder, motor driven with hydraulic lift and roll-up stand
1—Rodney Hunt M-3 2-string Fulling Mill
5—#7 Hunter 2-string Fulling Mills
1—48"x21" Smith & Furbush Garnett
1—49"x20" James Smith Garnett
18—40", 48", 60", 80" Card and Napper Grinders
2—Peerless Belt Lacing Machines
1—Card Lacing Machine with ½ HP Ind. Motor
2—45½" C&K 4x1 non-automatic, motor driven Looms with silk rool take-up
120—45½" reed space Modified E Draper Looms with lacey tops, 3 bank stop motions, worm take-up, belt driven
1—48" C&K 4x4 box Loom, 25 harness, belt driven, friction clutch
49—54½" reed space C&K 4x1, 2x1, 1x1 Looms, 20 and 25 harness, belt driven
46—80" and 82" C&K 2x1 automatic Looms, 8 harness cam motions, motor driven
2—82" (1 Union) and (1 McCloskey) 4x4 Box Looms, 25 harness, friction clutch drive
1—92" C&K 4x4 Box Looms, 25 harness, friction clutch drive
10—92" C&K, 4 x 1 Automatic Looms, 8 Harness, Cam Motion, Motor Driven.
1—44" C&M Measuring Machine, 60 yd. dial
1—64" P&W Measuring and Woolen Cloth Winder
1—66"x23" P&W 60 yd. Measuring Machine, sanded roll, belt driven
1—66"x24" P&W AWC Measuring and Folding Machine, 100 yd. counter and folder
1—12 Pole Smith Drum Skein Mercerizer
2—240 spindle D&F 2" gauge, 10 jack spool Drums
83—New Leland 1+ HP 3/60/220V Heavy Duty Motors
Also various size Rebuilt Motors
1—61" Woonsocket 2-cylinder Napper, 20 rolls to each cylinder, gear driven rolls
4—80" D&F 20 roll Single and Double Acting Nappers
1—30x30" Mezzera Wool Opener with grid and 25" feed apron, wire good
1—45" 2 roll Padder, rubber rolls
1—24" Schofield Rag Picker. Belt Driven
1—36" Sargent Multiplex Burr Picker.
1—42" Olsham Fearnaught Picker
2—48" Parkhurst Burr Pickers with blower
2—48" C.D. Sargent Burr Pickers
1—54" Werner Single Color Printing Machine
7—52", 65½", 66" and 98" Voelker and Gessner Single and Double Bed Rotary Cloth Presses
4—50 spindle Carpenter 54" Skein Reels, non-adjustable
1—60" P&W Single Blade Smooth Woolen Shear
1—60" C&M Single Blade Plush Shear
2—60" and 66½" P&W Single Blade File Tooth Woolen Shears
2—66½" P&W Single Blade Woolen Shears
11—65½" P&W 2-blade Shears, Model B
1—66" P&W 2-blade Shear, Model A
2—76" C&M Double Blade Shears
1—42" C&M Singer with hood
1—32½" D&F Jack Spool Winder
6—Smith and Furbush Spoolers, 44" drums, 48 ends, 44½" long spools with 10" head. Complete with spool stands.
1—100 spindle Whitin Spooler with Foster Tensions, McCall Guides
1—60" C&M Single Brush Tiger
4—80 spindle Hopedale band driven twisters 4½" ring, 5½" ga. Belt driven.
2—Fales and Jenks 144 spindle Double Roll Novelty Twisters, 2½" ring, 6" traverse, Motor Driven.
1—Washing Tub Agitator with motor
5—100 spindle Foster Model 12A Tube Winders
2—60" P&W Winders with stencil attachment

QUANTITY OF MULE BOBBINS AND VARIOUS SIZE TWISTED BOBBINS AND WOODEN SPOOLS.

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. 1923

31-33 West 42nd Street MLC NEW YORK 18, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

For Immediate Delivery

380,000 SPOOLS

3" Head — 3⅝" Trav.
METAL HEAD PAPER BARREL
IN EXCELLENT CONDITION

350,000 Fibre Head 3½" Traverse 2½" Head Spools —in Excellent Condition

35,000 5 B Spools
FIBRE 4" TRAV 2⅜" HEAD

100,000
Metal Head Spools
3" Head
5" Trav.

SILK AND RAYON WINDERS
3—Atwood Double Deck Winders. 140 Spindles Each
3—Sipp Double Deck Winders... 120 Spindles Each
4—Eastwood Double Deck Winders. 256 Spindles Ea.

60,000 lbs.
Orig. Case
Fiber Glass
225 - 2 - 5
YARN!!

Wm. Rabinowitz & Sons
214-222 HAMILTON STREET · ALLENTOWN, PA.
PHONE 3-7498
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PHONE 3-7497
WRITE

50 C & K
4 X 1 GEM HEAD
56" Reed space set up for motor drive—no motors
8—C & K 52" 4x1, 25 Dobby, ¾ H.P. Motor Drive. 1923 Model.
16—C & K 52", 4x1, 30 Dobby, ¾ H.P. Motor Drive. 1923 Model.

20 Bahnson Humidifiers
2 Phase Motors

Steel Strapping
⅜" and ⅝" ACME SIGNODE
Original New Rolls. 300,000 Lbs. In Stock—Reasonable in Price. Mail in Your Orders Now.

FOR SALE

1—36" Schofield Lumper
1—30" Schofield Hair Picker
1—E. & H. 66" yard folding machine
1—L. & G. 30 sp. Cop Winder, Skeins to Cops
6—Globe Ball Warpers
1—P&W Doubling & Folding & Measuring Machine, 66"
1—P. & W. 66" Double Shear, Mod. "B"
1—Hunter Rope Soaper, single strand
2—Spencer Automatic Oilers, 48"
1—Sargent 48" Burr-Picker with feeder
1—Voelker 66" Press with extra cylinder & jackets
1—Gessner 66" "Jumbo" Press
1—P&W Plush Shear 66"
1—Set (7) Copper Cans 33"x23"
1—Simpson 45" Batcher
1—84" D.A. Woonsocket Napper 20 rolls, Motor Drive
1—54"-4 Blade Hermas Silk Shear
1—14 String Rodney Hunt Slack Washer

UNIVERSAL WINDERS
#50's and #90's rebuilt to order.
Specializing in Woolen Yarn Machinery

FRANK W. WHEELER Co.
1837 East Ruan St., Phila., Pa.
Phone: Jefferson 5-4771

FOR SALE

48—Mod. D. Draper Looms 75" R.S. with 20 harness worsted heads.
1—Reeves Drive Size 5 Class A.
300—11¾" Comber Rolls.
1—60" V.V. Ball Bearing 2 roll Quetch.
300—Warper Beams 24" CI or Wood heads.
4—Woonsocket 8x4 Speeders 160 spindles ea.
1—Starch Unit—1—2 roll Padder 45".
2—Cast steel Size Kettles 35"x41" with agitators.
1—Set hor. Copper Dry Cans 23"x42" complete.
1—Ceiling Cloth Folder 42" beelt driven.
1—3 roll Friction Calender 42" face with slip belt batcher.
1—E&H Cloth Folder 42" wide.

BTS
BOBBINS — SPOOLS — SKEWERS — SUPPLIES, etc.
BAY STATE TEXTILE CO.
220 HARTWELL STREET · FALL RIVER, MASS.

LOUIS J. WELSH Pres. & Treas.
JOHN J. McCLOSKEY, Inc.
ROBERT H. WELSH V. Pres. & Gen. Mgr.
MANUFACTURERS AND DEALERS
TEXTILE MACHINERY OF ALL TYPES
APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED
Office Factory Warehouse: Collingswood, N. J.

GAINES TEXTILE MACHINERY CO.
Dealers in Rebuit and Guaranteed
Yarn Winding and Spinning Machinery
141-45 West 17th Street New York 11, N. Y.

HARRY STEPHENSON
IMPORTER, DEALER AND MANUFACTURER
TEXTILE MACHINERY AND APLLIANCES
New and Used
River Works, Andover, Mass.

As for the past 30 years . . .

"Consolidated"

Sends Season's Greetings
and Best Wishes For Peace and Prosperity

WE BUY AND SELL "FROM A SINGLE ITEM TO A COMPLETE PLANT"

4—Multi-color Print Machines, 8-11-12 colors.

EXTRACTORS
4—K & G & Burkhardt 60" Extractors, rubber baskets.
1—Hercules 48" Extractor, copper basket.
3—26" & 30" Hercules Extractors.
1—V.V. 42" self Balancing Extractor with motor.
2—Gessner 72" & 50" Vacuum Extractors.
3—Holhurst 48" & 36" Open Top Extractors.
1—Gessner 78" Vacuum Extractor.

DYEING MACHINES
3—K. & W. Obermaier & Buhlmann skein dyers.
1—Sargent 3-bowl scouring train, 48" bowls.
1—Obermaier Package Dyer, complete with pump, etc.
1—Vacuum Raw Stock Dyer.

DRYERS
1—National Loop Dryer, 6 fans, 86" wide.
1—Heathcote Pin Tenter Dryer.
2—3-Apron Conveyor Dryers.
2—P & S Raw Stock Dryer.
1—Van Vlaanderen Net Dryer.
1—P & S Multi-pass Conveyor Dryer.
1—P & S 2-section skein dryer.
1—P & S 500# Skein Dryer.

NAPPERS
2—D & F Single Acting Nappers, 60" & 84".
2—Woonsocket 86" 20-roll S.A.B.B. Nappers.
1—Woonsocket 86" 24-roll D.A.B.B. Nappers.

TENTER FRAME
1—Butterworth 90' Tenter Frame, 50".

PALMERS-PALMER QUETCH UNITS
1—Textile 66" Low type Palmer.
1—V.V. 88" Palmer Quetch Unit.
1—General Machine Co. Palmerette.

COATING MACHINES
1—Butterworth coating machine with drying cylinders.
1—Textile 60" Coating Unit with geared pump.
2—Knife Coating machines, 64".

BEAMERS-BATCHERS—TUBERS
5—Textile 50", 60", 66" & 72".
4—2-roll B.B. Batchers, 50"-72".
4—Tubing & Measuring Machines—50"-72".

PREPARATORY MACHINES
4—Shoddy or Rag Pickers.
1—Process Opening & Cleaning Unit.
1—Terrill Bobbin Stripper.
1—Curtis & Marble 48" Fearnaught Pickers.
1—Whitin automatic Cleaner.

WASHERS
1—Rodney Hunt Rope Washer.
1—Rag Washer.

CALENDERS
1—Grand Rapids Calender, 46½".
1—Butt, 3-roll 55" Calender.
1—Textile Fin. Co. 150" 2-roll Calender.
1—C. & M. 2-roll 60" Calender.
1—Knit Goods Calender.
1—Butterworth 4-roll Calender.
1—2-roll 150" Calender.

Complete Upholstery & Drapery Fabric Plant.

Complete Carpet Plant.

SHEARS
3—P & W 2 Blade Shears 66½".
1—P & W Single Blade Shear 60".
1—Plush Shear.

DYE BECKS—DYE JIGGS
3—V. V. 4' stainless steel lined dye becks, complete with motors and drives. New all S.S. Dye Becks, 4'20" long.
4—60" S.S. Dye Jiggs.

1—3-Roll Heavy Duty Calender, 100".

KNITTING MACHINES
4—Dubied & C & F machines.
5—Tompkins circular knitting machines; 26" dia., 18 gauge.
10—Chenille machines.

WEAVING MACHINES
30—C & K heavy duty duck Looms, 76".
30—C & K 2 x 1 looms, 68".
55—C & K Jacquard Looms, 48".
5—C & K Carpet Looms.
10—Draper "D" 72" Automatic Looms.
10—S & L Narrow Fabric Looms.
1—C & K 18' Ribbon Loom and Winder.

GARNETTS
4—P & S & Hunter 4-cylinder Garnetts.
1—Hunter 2-cylinder Garnett.

PRINT MACHINES
1—Single Color Print Machine, 60".
1—Werner 54" Single Color Print Machine.
2—Van Vlaanderen Ribbon Printing Machines.
1—Waldron 4-color Printer.

CARDING MACHINES
14—H & B & Lowell 40" Cards with 12" coils.
2—4-cylinder Woolen Cards, 48" x 48".
3—3-cylinder Woolen Cards, 48" x 48".

SPINNING & WINDING MACHINES
1—Davis & Furber Compressor Spooler.
12—#90 Universal Winders, for silk operations.
1—Sipp 80 spindle Winder.
25—Sipp-Eastwood Winders, m.d.
3—Atwood 5-B Spinners.

BUTTON BREAKERS
2—V.V. 60" & 50" Button Breakers.

TWISTERS
5—Brownell Twisters, 48 to 96 spindles.
1—D & F 60 spindle Twister, 3¾" gau.
3—Atwood Double Deck Upstroke Twisters.
4—Atwood 5-B Spinners.

MISCELLANEOUS
5—Chinchilla machines.
1—Sample Dye Vat.
1—72" Flopper.
1—Havet Patch Ager.

"AMERICA'S BEST BUYERS" WANT YOUR IDLE EQUIPMENT

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SINGLE ITEMS TO COMPLETE PLANTS

—

SEND YOUR LIST NOW

THE KEY TO SAVING TIME AND MONEY

CONSOLIDATED PRODUCTS COMPANY, INC.

Address All Textile Inquiries to

TEXTILE DIVISION, PATERSON 2, N. J.
33-41 BERGEN ST. Tel. ARmory 4-6540

15 PARK ROW • NEW YORK CITY 7 • N. Y.

FOR SALE

ITEMS N98 & N99

2 WOOD TUBE FOSTER WINDERS

Model 101—100 Spin.—6" Traverse 8" Dia. Package. Creel supply in spin. or twist bobbin. Each equipped with 2—3 HP, 550 V. motor drive V belt, each motor taking care of 50 spin. per side.

ITEM 12293

1 RAILWAY TRACK PIECE GOODS SEWING MACHINE

72" wide—Emerson Motor
1/10 HP, 110 Volts, 1750 RPM

ITEMS 998E & 999E

2 WHITIN QUILLING MACHINES

304 Spindle—3½" Gauge 10½" Traverse—Model "J"

ITEMS 1244-1245

2 CAVAGNARO EMBOSSING MACHINES

Large Heavy Type 3 Roll Machine—But No Embossing Rolls Included—Takes 60" Goods

ITEM 12208

CAN DRYER

29 Tinned Steel Cans 144" Face x 24" Dia. Butterworth—3 Section Vertical

ITEM 9866

BOIL OUT MACHINES

Includes Pumps & Foxboro Temp. Clock—Also Roll Up Machine—72"

ITEM 9755

DEWING MACHINE

72"

ITEM 9841

WHITIN TAPE-CONDENSER — NEW —COTTON

Model "C"—Serial 425000—Series—40" Width

ITEM H 1000

BACK WASHER DRYER

Taylor-Wadsworth—12 Cylinder

ITEM 9945

WOODEN CREEL

85½" High—108" Long—7" Spindle—Centers for 220 Ends—3¼" Spindle—Centers for 440 Ends—Takes Paper Tubes

ITEM 10190 R

1—3 CYLINDER C. & A. TIGER

All Belt Drive from 5 H.P. Motor—66" wide

ITEM 9838

1 SINGLE DRUM JACK SPOOLER—48 END

Or Compressor made by Worcester Warp Compressing Machine Co.—48" wide with Jack Spool Stand —5 digit Veeder Root yardage counter

ITEM 12149

STRAIGHT TYPE CREEL—NEW

McBride—300 Ends—Suitable for 4" x 8" Roving Bobbins—Equipped with Brake & Elec. Drop Motion

ITEM 6781

GESSNER STEAM PRESS

Jumbo Typt—66" Wide
Item B-DH 13-14-15

3 PIECE DYE TUBS

Wooden—Rodney Hunt Type "O"
Double 60" Width
Open Width Type
...pped with Both Reel & Spreaders

Collins & Aikman Corp.

Sales & Salvage Department
6th & Upland Aves.,
Upland, Delaware Co., Pa.
...a — Chester 4167

AGAR, Wood, Acid
AGER, Stainless steel Acid
AGER, Tower, New
BEAMER, 60" Van Vlaanderen
BEAMER, 60" with steaming drum
BLOWER, New, Squirrel cage type
BLOWERS, R.C. 8x5 3/5" 350 Cu. Ft. per min.
BOILER, New York Gas 3 HP 100 WP
BUTTON BREAKER, VV 50"
BELT, leather 3 ply 28"x½"x70" long
CALENDER, 4 roll 50" Hydraulic
CALENDER, 3 roll 70" face
DECATER, Gessner, full 72"
DECATER, Semi, Van Vlaanderen
DRY CANS, set of 16, 72"x23" dia. horizontal
DRY CANS, set of 19, 50"x23" dia. vertical
DRYER, P & S Airlay
DRYER, P & S Loop
DRYER, Single & Double Truck
DYE BECKS, Stainless steel 4' to 20' NEW
DYE TUBS, 6' Wood complete motorized
DYEING MACHINES, Smith Drum Paddle type
DYEING MACHINES, Smith Drum Pocket type
DYEING MACHINE, Smith Drum 60 Arm
DYEING MACHINE, Rochester Rotary 30"x20", 3 pocket 20 lb. capacity
EMBOSSER, 54" K. & G.
EXTRACTORS, Beam 50" & 60" BB
EXTRACTORS, Open top Tolhurst 40"
EXTRACTOR, Open top 30" American
EXTRACTOR, K & G, 48", rubber lined basket
FANS, Exhaust 3 blade propeller 30", 36", 48"
FLAT FOLDERS, Elliott & Hall adjustable
HOISTS, Budgit, 1 ton capacity
INFRA RED units complete with blowers
INSPECTION TABLES, 47"
JIGGS, monel lined 60", 50" stainless steel
LOOMS, Draper Model #30", 40", 55"
LOOMS, C&K Heavy Duck Looms 76"
MOTORS, ¾ to 5 HP AC/DC220 volt
PAD, 3 roll Hydraulic
PAD, 2 roll 50"
PALMER 62"
PALMERETTE, 60" face, General Machine
PRINT MACHINE, 10" sample or ribbon
PRINT MACHINE, 6 color 60"
PUMP, Worthington Vacuum, 18x9 complete with 25 HP motor
QUETCH, 2 roll BB 50" & 60" ball bearings
SCUTCHER, NEW
SHEAR, Hermas, 4 knife 70" wide
SHELLS, Wooden 40"-42"-44"-48"
STEAMER, 60" long 54" dia. Cottage
TENTER FRAME, Pin W & J 30'x220 wide
TENTER FRAME, Morrison 30'x60"
TUBERS, Paterson variable speed motors
TUBER, VV with doubling attachment
WARP COMPRESSOR CREEL
WASHER, open 4 compartment 60" wide
WASHERS, Slop, New Stainless steel
WASHER, GL Rope type steel & wood
WOOL WASHERS, J. Hunter 6'

We are prepared to help you in disposinng of or acquiring both complete plants and individual machines. Your inquiries cordially invited.

CADGENE MACHINERY CO.

5th Ave. & McLean Blvd.
P. O. Box 1206 Paterson 4, N. J.
Sherwood 2-6577

FOR SALE

8—Barber-Coleman High Speed Warpers and Creels, 432 ends per creel. Will produce 450 yards per minute.
10—Crompton & Knowles 1920 model Duck Looms, motor driven with motors. Will weave 62" duck varying from 7 to 30 oz. Also included is one beamer complete and two cop winders.
4—H & B—8x4 speeder 144 spindles each.
3—38½" F-2 Kitson Hoppers. Rebuilt.
3—36½" F-2 Kitson Hoppers. Rebuilt.
1—34½" Kitson Hopper motor drive with motor. Rebuilt.
1—Vertical cloth brusher serial No. BR-1784.
1—101 Foster Winder 80 spindle spingle motor drive.
10,000—4 x 5½ Lestershire spools.
1—750 Gallon Lea Courtney Firepump.
12,000—Long blade roller weaving spindles complete.

SAM SCHWARTZ MACHINERY CORPORATION
CHARLOTTE, N. C.
P. O. Box 1461 Telephones 3-7764—3-7765

TEXTILE AUXILIARIES

FOR IMMEDIATE DELIVERY FROM OUR OWN STOCK

Rubber and brass rolls from 30" to 112" long in all diameters.
Sturtevant blowers #4 to #8.
Motors all sizes.
Dye jigs 50".
2—36" hydro extractors.
1—Button breaker 50".
Dye pads from 40" to 112".
Copper and steel dry cans 40" to 130".
3—4' Diameter x 46" face copper cans heavy gauge.

SINGLE ROLL BATCHERS.
1—40" Sludge Extractor (iron).
1—36" 3 roll hydraulic calender.
1—Brass pressure tank, 160 gals.
2—McClusky Filing System.
1—GE Generator—100 Kva, 220 Volts, 3 Ph. Speed 900.
2—Compressors abt. 25 cu. ft. complete.
1—Baley Palmer & Blanket 54".
1—3 color Block Printing Machine.
2—42" Shreiners Screw & Lever Pressure.
1—56" Geared Embossing Machine.
1—Lot of Gears with Link Belts.

TEL. DEXTER 9650 15 ORMSBEE AVE.
PROVIDENCE, R. I.

For Sale:

1—90", 5-roll Calender
3 Chilled Iron and
2 Husk Rolls

Can be seen in operation.

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GOSHEN, INDIANA

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Used Textile Machinery and Supplies

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Warpers • Winders • Quillers
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COMPRESSORS
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New & Guaranteed Rebuilts
Stationary & Portable
SALE OR RENT
Low Pressure Compressors for Air Moistening.

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TEXTILE EQUIPMENT

COMPLETE WOOLEN MILL

CONSISTS OF
PICKING EQUIPMENT
CARDS
SPINNING EQUIPMENT

This Mill May Be Inspected in Operation

SPINNING EQUIPMENT

8—Universal #50 WINDERS, 6 spindles each, with motor.

6—Universal #75 CONE WINDERS, 36 spindles.

5—#30 FOSTER CONE WINDERS, 100 spindles.

2—Foster #12 Skein to Cone WINDERS, 100 spindles each.

KNITTING MACHINES

23—Circular Rib KNITTING MACHINES, 10" to 16", 10 and 11 Cut, 8 Feed.

20—Veeder Root PICK COUNTERS.

EXCELLENT FINISHING EQUIPMENT

1—Butterworth 90' TENTER FRAME, 15 HP motor, steam coils, brass clips.

1—Winsor & Jerauld TENTER FRAME.

1—Set horizontal DRY CANS, 23 Copper Cans to set, 105" wide.

1—Set Vertical DRY CANS, 40 Copper Cans to set, 105" wide.

1—Butterworth 50" DYE JIGG, Stainless Steel, with motor.

1—Van Vlaanderen 54" QUETSCH, 2 roll, Ball Bearing, Rubber rolls with motor.

1—Proctor & Schwartz LOOP DRYER, 30' length, sticks 7' 1", 4 overhead fans.

1—Hennekin TUBER, 50", 1 rubber covered roll, ½ HP motor.

2—52" Elliot & Hall FLAT FOLDERS.

4—DYE JIGGS, 54".

1—50" TUBING & MEASURING MACHINE.

1—Textile 2 Roll PADDING MACHINE, 45" width, top roll rubber, bottom roll brass.

1—Set James Hunter SQUEEZE ROLLS, 17" width, top roll rubber, bottom roll brass.

4—Saturating TANKS, James Hunter Machinery Co. rubber lined, 60" deep, 52" long, 42" wide, equipped with rubber covered bottom rolls.

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Republic Textile
EQUIPMENT COMPANY
40 WORTH STREET NEW YORK CITY
Purchase and Sale of Used Machinery
REFINANCING • APPRAISALS • PURCHASE • SALE • LIQUIDATION OF MILL PROPERTIES

FOR SALE

1—Van Vlaanderen #8 Mixer, Tank Size 21" x 42" x 20" Deep

1—Drive, #14D16.66 P.D. Generator Sheave #14D58.0 Lineshaft Sheave (Completely Split) 7-7/16" Bore, Standard Keyway, 14—#330D Gates Vulco Ropes

1—Type CS Induction Motor, Frame 874-D, 200 HP, 3 Phase, 60 Cycle, 550 Volt, 880 RPM, for use as an Induction Generator and to operate as such at 920 RPM. 1 set of Rails

1—Van Vlaanderen Button Breaker, 50" Brass Rolls. Ball Bearings

1—"HERCULES" Centrifugal Hydro Extractor, #11613, Type B, Size 48", 690 RPM, Maximum Allowance of Wet Goods in lbs. 900

1—New Worthington #3-L-1, Single Stage, Horizontally Split, Double Suction, Ball Bearing Volute Pump, to delivery 300 G.P.M. against a total Dynamic Head of 123 ft., handling 180° F, Water of a specific gravity of .97, operating 2900 RPM at 70% efficiency, requiring 13 HP with flexible coupling, driven by: one type BT Witon Steam Turbine to delivery 15 HP., at 2900 RPM, with 140# Gauge steam pressure, 3% moisture, exhausting against 10# gauge back pressure, Turbine suitable for operation with 225# gauge steam pressure

1—20" American Laundry Basket Extractor Complete with 1.9 HP Motor 1800 RPM

1—50" Five bowl calender complete with three husk rolls and two steel cylinders

4—50" Schreiner Calenders with cotton and wool bowl and steel cylinders

3—40" Schreiner Calenders with cotton and wool bowl and steel cylinders

1—lot consisting 15 various sized Cotton & Wool, Husk and Paper Rolls

2—Schreiner Engraving Machines—John Hope & Sons

1—Schreiner Polishing Machine—John Hope & Sons

2—500# Dumb waiter type elevators

1—John Hope grinding and engraving machine for Schreiner rolls

1—Butterworth hydraulic baling press—42 x 66

1—Copper kier or kettle 48 x 48

1—Granger Foundry (Textile) 3 bowl calender, 44" face, top and bottom cotton bowls, middle bowl chilled iron

1—Textile 7 bowl hydraulic calender, 80" face, brass and cotton bowls

1—Butterworth 7 bowl hydraulic calender, 80" face, chilled iron and cotton bowls

1—Perkins 6 bowl hydraulic calender, 42" face, 2 chilled iron and 4 wool paper bowls

1—Butterworth 6 bowl lever set, 80" face, 3 chilled iron and 3 cotton bowls

1—Butterworth 6 bowl lever set, 80" face, 3 brass and cotton bowls

5—Curtis Marble brushing and shearing machines—42"

3—Centrifugal extractors (Centrifuges) (Sharples)

1—Steel Economy Baling Press 72" x 42" table

1—Rodney Hunt 8' oval reel slack washer

1—12" x 24" Power Driven Duplex Pump (Deane)

1—10" x 12" Power Driven Duplex Pump (Deane) No. 41734

6—78" face, thirty-six roll, Woonsocket Napping Machines

1—78" face, Woonsocket Emery Nappers

2—78" face, twenty-two roll, Tarry Nappers

1—General Electric Transformer, Rating 333 k.v.a. Voltage 22000-600, Type H, Form D, Single Phase, Cycles 60.

THE ASPINOOK CORPORATION

JEWETT CITY, CONN. **PHONE JEWETT CITY "240"**

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15 TRICOT KNITTING MACHINES

8 WHITIN 168" MACHINES

4 LESS THAN ONE YEAR OLD
OTHERS APPROX 4 YEARS OLD

3 GERMAN 180" MACHINES
2 GERMAN 168" MACHINES
1 ENGLISH 180" MACHINE
1 ENGLISH 144" MACHINE

All 28 gauge, individually motorized with 1½ H.P. motors—all can be used for rayon, silk, cotton and nylon. All double bar—have interchangeable ends, rack indicators and clocks. *All machines now in operation. In excellent condition.*

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FOR SALE

WORSTED

20,000—Fiber French Drawing Rolls—8¼" o.a. x 1⅛" i.d.
25,000—8¾" Automatic Loom Bobbins.
100,000—8¾" Mule Spinning Bobbins.
65,000—Twister Bobbins—6"x2"x1¾"—5"x2"x1⅞"—8½"x2½"x1⅞".
2,700—Twister Bobbins—8½" o.a. x 7¾" Trav. x 2" base.
10,000—Roving Bobbins—7" x 4".
1,000—Roving Bobbins—9" x 5".
4—Spinning Frame Change-Overs, including Rails, Rods, Rings & Spindles.
1,075—10" Ratchet Ring Gears—26 to 106 Teeth.
103—Motor Pinion Gears—C. & K.—16 to 29 Teeth.
78—Pr. Worsted Split C.I. Flanges—18"—22"—28".
Lot of 4 Cell, C. & K. Magazines.

COTTON

9,500,000—Flat Steel Heddles: 9"—10"—12"—16" Cotton.
11,000,000—Flat Steel Heddles 13" Silk—on 41" Frames.
11,800—Heddle Frames for 12" Heddles—37" to 88".
15,000—Saco Lowell Standard Slubber Bobbins—13½" o.a. x 2" dia. barrel.

Large Lot of Loom Parts, Truck Casters, & Loom Weights

L. J. McCAFFREY & SON

P. O. Box 495 Pawtucket, Rhode Island

FOR SALE

(8) GARNETTS complete consisting of:

2—batteries of four (4) two cylinder 20" x 60" Hunter garnetts, ball bearing, with chain and sprocket worker drive. Clothing perfect, highest type equipment, with large hopper Harwood feeders, Hunter stationary lappers, running onto one floor apron.

Winding head, slitter; compression rolls, Fales Stitching machines, and special equipment for manufacturing the highest grade, plain and stitched batts. Immediate delivery, offered subject to prior sale.

H. B. LINCOLN JR.

P. O. Box #11 Swarthmore, Penna.
PHONE Swarthmore 1248-M—1248-J

KNITTING MACHINERY

For Full Fashioned & Seamless Hosiery
Underwear & Outerwear Mills
A complete line of
Dyeing & Finishing Equipment.
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MORRIS SPEIZMAN CO., Inc.

506 West 5th St. Charlotte 1, N. C. Phone 3-1894

1500 Ft. of 658 Conveyor Chain & Trolleys
2—Spencer Turbine Blowers
Leeds-Northrop, Foxboro, Bristol and Tag Pyrometers & Controllers
2—New 60" Meas. & Tubing, Motor Driven
1—Hercules 26" Extractor Open top, Motor

A. & M. BLANK CO., INC.

49 State Street Paterson, N. J.
Sherwood 2-1367 Lambert 3-9523

FOR SALE

Repeaters, Lacers Card Cutters Jacquards of all description, also Plush Jacquards

EUGENE SECKLER

96 N. 7 St., Paterson, N. J.

TEXTILE MACHINERY

CARDING AND SPINNING
Specialists

DOYLE & MILLER

6600 BALTIMORE AVE., FERNWOOD, PA.

WE OWN AND OFFER FOR SALE

100—Draper Automatic Looms for 40" goods, Roper let-off and ratchet take-up, Belt Drive.

20—Crompton and Knowles Automatic Looms 4 x 1 with 20 harness dobbies to weave 40" goods

8—Ribbon looms with dobbies. 15'6" with double set of battens, one set for making Boucle fringe, the other set of battens for regular ribbon work

60—Draper Automatic Looms for 60" goods, equipped with Roper let-off and ratchet take-ups, Belt Drive

50—Draper Automatic Looms for 48" goods, Roper let-off and worm take-up, Belt Drive

10—Crompton and Knowles 4 x 4 48" Jacquard Looms, individually motor driven

20—Crompton and Knowles 2 x 2 48" Jacquard Looms, individually motor driven

50—Crompton and Knowles 600 hook double lift Jacquard machines

52—Crompton and Knowles motor driven Looms 4 x 1, equipped with dobbies, Warp stop motion, pick clocks, temples, beams, etc., 51½" Reedspace

74—2 x 1 same as above all for 48" cloth space

#90 Universal quillers or coppers, with or without bunch builders belt driven or motor driven

Sipp or Eastwood warpers and creels, 83" and 72"

3—Atwood 5Bs Double twisters, motorized, 100 spindles, 6 End

38—C and K 4 x 1 Worsted Box Looms Warp Stop Motions, Feeler Motion, 25 Harness Dobby, Motor Driven with Motor and Flanged Beam.

PATERSON
SILK MACHINERY EXCHANGE

24 Spruce St., Paterson, N. J. **Sherwood 2-1363-4-5-6**

FOR SALE — *Immediate Delivery*

1—Woonsocket Horizontal Cleaner, 1914 model.

6—Saco-Lowell type F-5 Feeders, 38½", complete with new Sargent Combs.

3—Kitson 45" Single Process Pickers, complete with Hopper Feeders.

16—40" Dobson & Barlow Cards, 15 of these Cards have 76 Flats, 2 workers and 2 clearers, ideal for waste.

44—40" Potter & Johnson Cards.

10—Frames Whitin Model "H" Drawing, 4 delivery to frame, 12" Coilers.

9—Woonsocket 12 x 6 Slubbers, 10" gauge, (7—80 spindles, 2—72 spindles).

3—H & B 10 x 5 Slubbers, 8" gauge, 72 spindles.

6—Woonsocket 9 x 4½ Slubbers, 2—114 spindles, 4—144 spindles).

20—H & B Spinning Frames, 2¾" gauge, 1⅞" rings, 224 spindles, 7" traverse, band drive.

16—Fales & Jencks Spinning Frames, 2½" gauge, 1⅜" Rings, 480 spindles, 7" traverse, band drive.

16—Frames Saco-Pettee Spinning, 3¼" gauge, 2¼" Rings, 228 spindles, band drive.

2—No. 90 Universal Winders, 20 spindles each, no bunch Builders.

1—Worcester Warp Compressor Beamer, for 64" Loom Beams, 24" Heads, with zig-zag expansion Comb, compression roll, 6 Beam Creel and Yardage Clock.

14—Stafford 30" H. D. Non-Automatic Duck Looms, 40" reed space, friction clutch drive.

25—Stafford 46" H. D. Non-Automatic Duck Looms, 55½" reed space, friction clutch drive.

4—Saco-Lowell 48" H. D. Non-Automatic Duck Looms, 55½" reed space, friction clutch drive.

6—Saco-Lowell 54" H. D. Non-Automatic Duck Looms, 61½" reed space, friction clutch drive.

6—Crompton & Knowles 100" H. D. Non-Automatic Duck Looms, 105¾" reed space, friction clutch drive.

6—Crompton & Knowles 100" H. D. Non-Automatic Duck Looms, 106" reed space, Motor drive (Motor not included).

1—Crompton & Knowles 120" H. D. Non-Automatic Duck Loom, Motor driven (Motor not included).

Phone 3-9831

TROY

P. O. Box 1245

WHITEHEAD

MACHINERY CO., INC.

CHARLOTTE **NORTH CAROLINA**

Available from Egan

TEXTILE MACHINERY

3—108" Knowles Looms, 20 harness, 4 x 4, belt drive

2—92" Knowles Looms, 20 harness, 4 x 4, belt drive

3—82" C & L Looms, 25 harness, 4 x 4 md

1—D & F Rubb Condenser, 16" Diam. rolls

100M—8 ¾" Robbins, 3 ring Drapers

GEORGE W. EGAN — WOONSOCKET, RHODE ISLAND — U.S.A.

EXPORT SHIPMENTS TO ALL PARTS

Cable Address

EGAN WOONSOCKET

FOR SALE

2—Davis & Furber Single Action Nappers, 80" width, 14 gear driven rolls

1—Curtis & Marble Single Blade Shear, 66½" wide, complete with raising and laying brushes

1—Davis & Furber Universal Napper Grinder, 80", 1942 Model

1—Tompkins Knitting Table complete with both 30" & 35" cylinders for both heads complete with stripers and wheels

MALDEN SPINNING & DYEING CO., INC.

257 COMMERCIAL ST. MALDEN 48, MASS.

AVAILABLE IMMEDIATELY

20 Roll 90"

Davis & Furber Napper

Completely Overhauled

Excellent Condition

with 7½ H.P. Motor and Sturtevant Suction Pump

Can be seen in operation

PRESSING SUPPLY CO.

210 N. Broad St. Phila. 2, Pa.

Phone RI 6-0106

LOOMS FOR SALE

200 Draper K Automatic Looms—42" cloth—25 Harness Dobby Heads—4-Bank Stop Motion—Bartlett Let-off—2-Shift Pick Clocks—now running on rayon fabrics. Ready for prompt delivery.

YORK TRADING COMPANY, INC.

P. O. Box 341

Pawtucket, R. I.

FOR SALE

1—128 Spindle Prince Smith 4 Ply Twister for 6 x 3 bobbin — Individual motor drive.

1—148 Spindle Prince Smith Twister—2¾" Ring Band Drive — Individual Motor.

FS-930, Textile World

330 West 42nd St., New York 18, N. Y.

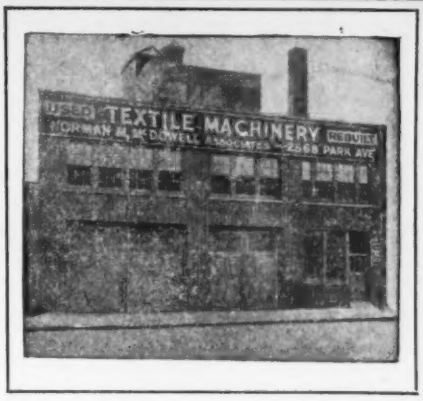
FOR SALE

Circular Knitting Machines

Two New Brinton's Circular Knitting Machines 20" Cyl. 20 cut 48 feed, 1½ H.P. for Plain Jersey or Stripes.

FS-920, Textile World

330 West 42nd St., New York 18, N. Y.



NOW AVAILABLE

GOOD EQUIPMENT PRICED REASONABLY PROMPT DELIVERY

McDOWELL ASSOCIATES

PARTIAL LIST

DYEING & FINISHING:

1—BATCHER 44" with Calender Rolling Head.
2—BRUSHING Machines 36" & 72" Single & Double roll units.
2—CALENDERS 25" width, 2 roll units.
1—CALENDER 42½" width, 3 roll unit.
2—CALENDER 80" width, 6 roll units.
1—CALENDER, Embossing 54" width, 2 roll unit.
1—CALENDER, Hydraulic 60" width, 4 roll unit.
2—CALENDERS, Hydraulic 80" width, 7 roll units.
4—VACUUM CLEANERS, Mill type, motor driven.
2—FULL DECATURS 72" complete with pumps etc.
2—DOUBLING & Measuring Machines 62" & 66" cloth.
1—Set COPPER DRY CANS 101" face x 23" dia, 21 cans, vertical.
1—Set COPPER DRY CANS 72" face x 36" dia, 6 cans, horizontal.
3—BACKWASHER DRYERS 9 and 12 cylinder units.
2—LOOP DRYERS 84" complete with housings etc.
2—NET DRYERS 48" and 90" cloth, fans etc.
1—PIN DRYER 80" cloth, steam coils etc.
1—RAW STOCK DRYER 3 tier, 250-lb. cap.
2—DYEING Machines, SKEIN 22 stick units, reel type.
2—DYEING Machines 25 and 110 arm units, tank type.
5—DYE KETTLES 6' & 12' boxes S.S. Lined.
3—DRY HEADS with 11-aluminum baskets, tubular knit-goods.
4—EXTRACTORS 40", 42", 48", copper baskets, belt & mtr driven units.
3—EXTRACTORS 60" copper & rubber baskets, belt & mtr driven units.
3—FOLDERS 24" to 50" cloth, 1 and 1¼ yd. units.
3—FULLING MILLS #10 Double Compartment units.
4—JIGGS 50" Stainless Steel Lined boxes.
14—HUMIDIFIERS Model G mtr driven units.
1—INSPECTION Machine 90" cloth equipped with clock.
5—KIERS 2000 to 3000 gallon capacities.
1—MANGLE 40" cloth, 2 roll unit screw set.
5—MANGLES 80" cloth, 2 & 3 roll units.
1—NAPPER, Single Acting 100" wide, 12 roll unit.
1—NAPPER 72" Double Acting 20 roll unit.
1—NAPPER 90" Double Acting 36 roll unit.
2—NAPPERS 80" Knit-Goods 20 roll units.
1—PADDER 75" width, 2 roll unit.

COMPLETE UNIT

D&F—Single Cylinder Woolen Card 72" wide x 60" dia. divided 3 sections equipped with breast, feeder, tape condenser taking off 32 ends. Card Fully clothed, age 1945.

D&F—Spinning Frame 32 Spindles 5" ring, 6½" Gauge to synchronize with card, age 1945

1—PALMER 60" x 40" dia with blanket & drying cylinder.
4—PRESSES, Rotary Steam units 66¼" & 80" Single & Double Bed units.
2—SEWING MACHINES, Rotary Foot power.
8—SHEARS 36" to 80" width, Single & Double Blade units.
1—SHEAR 44" with 4 sets of cutting parts & brushes.
1—SHEAR for CARPETS 12/4 single blade unit.
1—SLITTER 42" with 87 knives 5¼" dia.
1—TACKING Machine 90" cloth, folder & sewing machine.
5—WASHERS 6' Boxes, wood log rolls.
1—WOOL SCOURING Unit 3 bowl 36" wide, for raw stock.
1—SKEIN SCOURING Unit 2 bowls 60" wide.
1—WASHER Rope type 9 tanks with scutcher, vacuum extractor and folder. Squeeze sets on each tank.
3—BACKWASHERS 2 to 5 bowl units complete with Gill Boxes.

CARDING, SPINNING & WEAVING:

1—BANDING Machine complete with motor.
50M—BOBBINS 8" for Mules.
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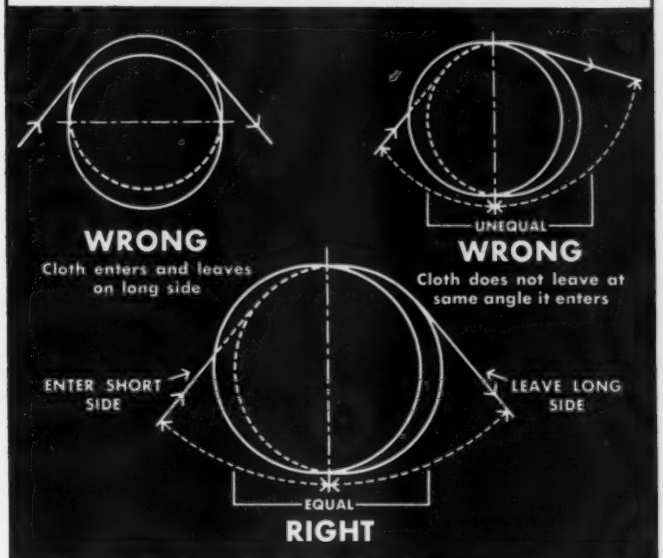
Mount Hope Free-Wheeling EXPANDER



HOW TO USE THE MOUNT HOPE FREE-WHEELING EXPANDER

There are many ways in which cloth can be led over this expander, but only one which will give the best results.

Shown above is a Mount Hope Free-Wheeling Expander with cloth going over it in three different ways. The first two methods are incorrect, because the cloth enters and leaves on the long or convex side in the first, and does not leave at the same angle at which it enters in the second. The third, and correct way, is to have the cloth enter on the short or concave side and leave on the long or convex side at the same angle at which it entered. This method alone gives maximum effectiveness to the Expander.

Advantages of the Mount Hope Expander, *if used properly*, are as follows: —

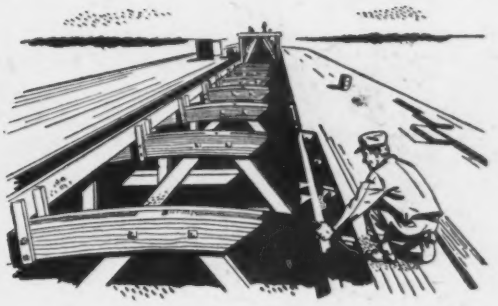
- **Because the warp is subjected to minimum tension less bow than usual is required, resulting in extra long life for the Neoprene surface of the expander.**
- **Expanders may be set at any desired angle to the cloth to adjust the amount of widthwise stretch produced.**
- **Ball bearings, grease packed, are securely mounted in steel spools to outlast many Neoprene sleeve coverings, and so designed that they cannot stick nor turn on the axle and cut it.**
- **This expander is suitable for all fabrics, including rayon marquisette and rayon and cotton tire cord, plastic film and paper.**
- **We will be glad to assist you, free of charge, with your cloth opening, guiding, or cross-stretch problem.**

MOUNT HOPE MACHINERY CO.

42 Adams St., Taunton, Mass.

Representatives — John H. Andresen, Inc., 138 Grand St., Paterson, N. J.; Ingalls Engineering Co., 1214 Union Trust Bldg., Providence, R. I.; Slaughter Machinery Co., Charlotte 1, N. C.; Sidney Springer, 316 East Commercial Street, Los Angeles 12, California; W. J. Westaway Co., Ltd., Hamilton and Montreal 3, Canada.

Up where trouble threatens..



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LUMBER with a PLUS!

Wolmanized Lumber gives you all of wood's advantages . . . speed of erection, light weight, resilience, high insulating value, paintability, low first cost . . . long life.

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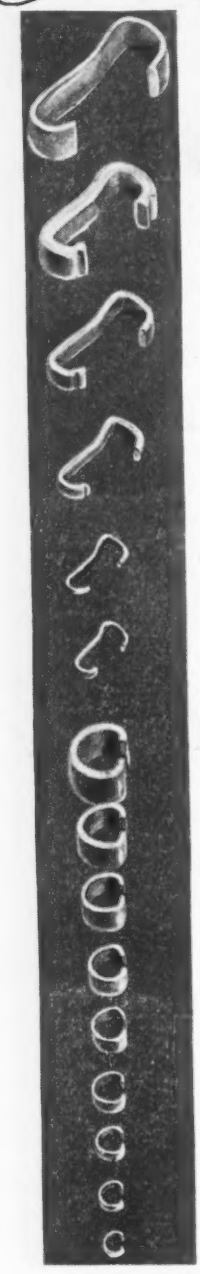

More and more mill men are changing to Carter Travelers every day. The performance of these superior travelers more than justifies the judgement of these men in terms of improved yarn quality and reduced production costs.

You can specify Carter Travelers with confidence... You can be certain that they will measure up to the highest quality standards. You can be certain that they will confirm your action as that of an alert, progressive mill man.

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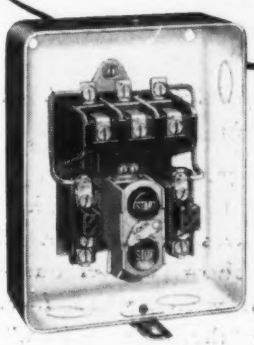

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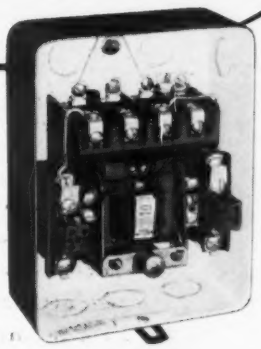

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Bulletin 709 solenoid starter. Has only one moving part and is good for millions of operations.

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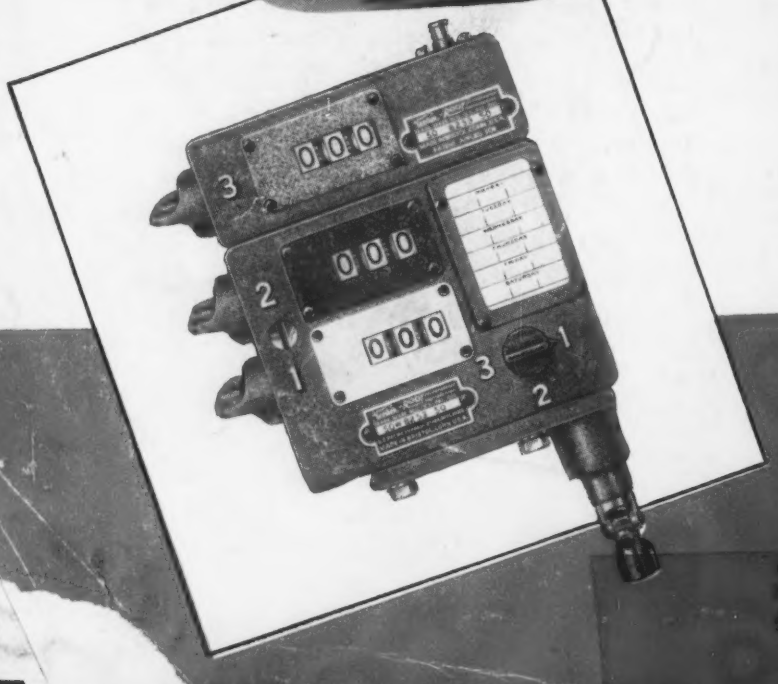

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